1993

Behavioral differences in depressed and conduct-disordered youth

Kathryn Haynes Rhody

College of William & Mary - School of Education

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Behavioral differences in depressed and conduct-disordered youth

Rhody, Kathryn Haynes, Ed.D.
The College of William and Mary, 1993

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BEHAVIORAL DIFFERENCES IN DEPRESSED AND CONDUCT-DISORDERED YOUTH

A Dissertation
Presented to
The Faculty of the School of Education
The College of William and Mary in Virginia

In Partial Fulfillment
Of the Requirements for the Degree
Doctor of Education

by
Kathryn Haynes Rhody
July, 1993
BEHAVIORAL DIFFERENCES IN DEPRESSED AND CONDUCT-DISORDERED YOUTH

by

Kathryn Haynes Rhody

Approved July 1993 by

P. Michael Politano, Ph.D.
Chair of Doctoral Committee

Charles O. Matthews, Ph.D.
Co-Chair of Doctoral Committee

Lesa G. Yawn, Ed.D.
DEDICATION

To my husband, Chip, and to my sons, Matthew and Jason

"Thank God for you, the wind beneath my wings"

This accomplishment is as much yours as it is my own, and my

dream a reality, because of your years of sacrifice, love,

and encouragement.

and

To the children in my clinical practice,

past, present, and yet to be seen,

who courageously share their world with me-- their sorrows,

their pain, and their triumphs--and who have inspired me to

complete this work.
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ACKNOWLEDGMENTS

This dissertation is the culmination of a 17-year journey of personal, professional, and academic growth. There are many special people and events in my life that have brought me to this time and place and who share in this accomplishment. Without them, my dream would never have been actualized, and I will be eternally grateful to each of them.

My husband, Chip, is responsible for initiating this journey for me so many years ago when our two children were still small and he recognized my search for self, kindled a potential I could not yet see, and encouraged me to return for graduate studies. During that very long journey, he has selflessly supported, encouraged, loved, and comforted me while frequently taking over more than his share of spousal and parental responsibilities without complaint. His unwavering belief in me has taught me to believe in myself and to strive to reach my potential both personally and professionally. He is my biggest cheerleader, my soul-mate, my best friend.

My children, Matt and Jason, have given up countless hours with their Mom and have been consistently loving and
tolerant of the demands of this work. They have reminded me of the therapeutic value of laughter and play to balance the frequently tedious, and sober demands of academic and clinical work. My load has been lightened by their spontaneous "gifts" of encouragement: a handwritten note of support left in the mounds of my dissertation research material, impromptu neck massages during countless hours on the computer, my favorite sweets left by the computer to sustain me through the long hours of writing and rewriting, and frequent queries of "How're ya doin', Mom?" Their own mastery of academic and personal struggles have been an inspiration, and I have learned much from them.

My long-time close friend, mentor, and clinical partner, Carolyn Tighe, first introduced me to the rewards of clinical practice and consoled me through the initial pains of learning to cope with the heartaches of others and accepting the limits of helping. She was instrumental in shaping my initial professional interest and eventual expertise in childhood trauma through generously and patiently sharing her own clinical wisdom and competencies. Throughout this process, she encouraged me in the recognition of my own personal and professional strengths, and gave me the momentum to begin the final path to achieving this doctorate.

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The chair of my dissertation committee, Mike Politano, has steadfastly stood by me through two dissertation attempts. His ever-patient and calm presence and reassurance helped to sustain me when I became discouraged and to fortify me when I wanted to quit. He has been an exceptional teacher, academic advisor, and friend who has greatly influenced my clinical work with children and who developed the idea for this dissertation. This study could not have been completed without his expert guidance and sharing of his extensive research and clinical knowledge.

I am thankful to Chas Matthews, who so graciously agreed to fill a vacancy on my committee. Academically and professionally, he has challenged me to expand my limits, gain new perspectives, and value spirituality in clinical work.

Lesa Yawn, as a member of my committee, professional colleague, and dear friend, has been a valued nurturer, a model of professionalism, and a fellow-traveler in the field of child abuse work who shares my passion for healing the hurts of childhood trauma and distress.

I also owe a debt of gratitude to others in my academic and professional world many of whom have traveled this same path and have offered technical support, reassurance, and helped me to stay focused; others have shared their wisdom with me within their own areas of professional expertise,
opened doors of opportunity and guided my professional path: Reiko Schwab, Wendell Pile, Marti Grenier, Kathleen Giles, Wanda Romm, Cathy Krinick, Linda Eastman, Marty Muguira, Jan Bradley, Donna Haygood, and Fred Adair.

My parents taught me strong family values, perseverance, and faith in God, which have sustained me through this process; my sisters have modeled courage and the importance of laughter, and they all have provided bountiful love, support, and caring.

My professional colleagues at Therapy Associates have endured the final stages of this journey with me and have also been supportive, available for mini-crisis sessions, and have contributed considerably to my growth in working with clients and their families. I am also grateful to Betty Hurlbert who helped me with the process of transmitting numerous rewrites long-distance for approval and for her encouragement along the way.

Numerous personal and family friends have also sustained me with prayerful support throughout the process of this doctorate and have my gratitude for their faithfulness.

Finally, I want to acknowledge the children in my practice who by sharing their lives with me have taught me about families and relationships, about suffering and healing, and about the strength of inner resources and who
inspired this research in recognition of their struggles and their courage to overcome life's difficulties.
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ABSTRACT

This study investigated the behavioral parameters of depression in children and adolescents for the purpose of (1) identifying behaviors common to depressed children and adolescents in an inpatient population, (2) identifying behavioral differences between clinically depressed and conduct-disordered youth, and (3) identifying age-related behavioral differences in depressed children and adolescents. Demographic information, DSM-III psychiatric diagnosis, CDI scores, and admitting problem (POR) behaviors were obtained from an archival data pool collected at four different child psychiatric hospitals over seven years on 630 subjects 5 to 20 years old. Three of the four hospitals served primarily low to lower-middle socioeconomic populations; the fourth facility largely served middle to upper-middle class populations.

Subjects were assigned to one of four research groups defined by psychiatric diagnosis (DSM-III) and/or by scores on the Children’s Depression Inventory (CDI), i.e., CDI only groups (high vs. low scorers), DSM-III only groups (depressed vs. conduct-disordered), DSM-III + CDI (depressed high scorers vs. conduct-disordered low scorers), and DSM-III only (depressed children vs. depressed adolescents).

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Forty POR behaviors previously identified as being symptoms or associated features of childhood depression were used in a discriminant function analysis for each research question.

There was no difference between groups on POR behaviors when separated only by CDI scores. Results supported some behavioral difference between psychiatrically diagnosed depressed and conduct-disordered youth. Sadness appeared to be the most powerful discriminating variable for predicting depression as separate from conduct disorder when depression was defined by DSM-III criteria alone and in conjunction with CDI cutoff scores of 11 or higher. Aggression was significant in predicting conduct disorder for the DSM-III only groups. Poor self-concept and school underachievement were also indicated as behavior variables having discriminating power when depression was defined by DSM-III only. Age differences in POR behaviors for DSM-III depressed children and adolescents were not significant. Results were discussed in terms of trends in the data that may be useful for further investigative efforts. The presence of a number of behaviors in DSM-III and DSM-III plus CDI depressed groups supported findings of previous psychometric studies; support was also found for several overlapping behaviors between depressed and conduct-disordered groups as reported in the literature. It was concluded that further behavioral study is needed with
depressed children and adolescents to confirm findings from previous psychiatrically and psychometrically based studies. Findings would ultimately be useful in formulating developmental refinements in the assessment criteria for childhood depression and aiding in the differential diagnosis of depression and conduct disorder.

Kathryn Haynes Rhody
School of Education, Counseling Program
The College of William and Mary in Virginia
BEHAVIORAL DIFFERENCES IN DEPRESSED AND
CONDUCT-DISORDERED YOUTH
CHAPTER 1
INTRODUCTION

Justification For The Study

The historical development of the concept of depression in children has been and continues to be characterized by controversy (Venzke, Farnum, & Kremer, 1987). Prior to the 1960s, depression in children as a clinical syndrome essentially was considered to be nonexistent. The beginnings of conceptual change was evidenced in 1971 by the Fourth Congress of the Union of European Pedopsychiatrists in Stockholm, Sweden, entitled "Depressive States in Childhood and Adolescence". Its major contributions were the acknowledgement of depression as a significant mental disorder experienced by children and adolescents and the recognition of the diagnostic difficulty with this age group (Annell, 1972). Acknowledgement within the field, however, has not come readily as was apparent in the 1975 National Institute of Mental Health conference on childhood depression where the acceptance of depression in children continued to be fiercely debated in the United States (Schulterbrandt & Raskin, 1977). Although a majority consensus at the conference supporting the existence of clinical depression in children was eventually reached, much
appears to remain unknown about phenomenology in childhood depression some twenty years later. Literature in the last decade has consistently supported the presence of affective disorders in children and adolescents while, at the same time, has emphasized inconsistent findings as to etiology and clinical manifestation of the syndrome (Venzke et al., 1987). Some researchers have maintained that the application of adult diagnostic criteria to children and adolescents is sufficient and valid while others, who espouse a developmental perspective to the problem, have purported that the development of age-specific criteria is necessary for the accurate diagnosis of childhood depression (Garber, 1984; Rapoport & Ismond, 1990; Trad, 1987). Recent literature reviews of current perspectives on depression in children (Finch & Saylor, 1986; Kashini et al., 1981; Trad, 1987; Venzke et al., 1987) have revealed that many questions remain as to the actual prevalence of childhood depression, whether adult criteria for depression are applicable to diagnosing depression in children, and whether depression in children is manifested differently at different developmental stages.

Finch and Saylor (1986), in an extensive overview of current knowledge of depression in children, stated that "childhood depression...for the most part remains an enigma...research efforts aimed at empirically examining
symptomatology, epidemiology, etiology, assessment, and treatment of depression in children have been sparse, difficult to interpret, and difficult to mesh with one another" (p. 202). Wide disparities in results among empirical studies have been attributed to the lack of agreed upon sets of diagnostic criteria between researchers for defining depression in children and adolescents; the use of unproven assessment methods; and differences in the nature of the populations studied, age ranges of subjects, and sources of information employed (e.g., child, parent, teacher, peers, clinician, etc.). Such differences in methodology obviously has made useful comparisons difficult if not impossible. Kashani and associates (1981) stated that "the use of subjective, nonstandardized criteria for the diagnosis of depression (in children) . . . reflects the lack of agreement concerning definition or conceptualization of the condition" (p. 145). Finch and Saylor (1986) concluded that the current available data does not adequately support one theory over another. They purported that although research on childhood depression is still in its infancy with results in most areas remaining inconclusive, the apparent prevalence of childhood depression is sufficient to warrant its investigation.

The most recent prevalence estimates have indicated that from 3 to 6 million, i.e., 3% to 10%, of all American
children are believed to suffer from clinical depression, compared to an estimated 15 million depressed adults, and may be at risk for suicide, the third leading cause of death for young people (American Psychiatric Association [APA], 1988; McKnew, Cytryn, & Yahraes, 1983). Schaefer and Millman (1982) estimated that 1 out of 5 children experience some form of depression and that over half of the parents of depressed children are depressed themselves. Reviews of prevalence studies (Finch & Saylor, 1986; Kashani et al., 1981; Lewis & Lewis, 1979) have demonstrated the difficulty in estimating actual prevalence rates due to wide discrepancies reported by investigators with rates ranging from less than 1 percent to more than 50 percent.

Among depressed children, self-injurious behavior and suicide have been reported to be frequent and increasing (Schaefer, Millman, Sichel, & Zwilling, 1986). Many children suffering from depression are believed to be unrecognized and therefore remain untreated (Carlson & Cantwell, 1982; Kovacs, Feinberg, Crouse-Novak, Paulauskas, & Finkelstein, 1984a; McKnew, Cytryn, & Yahraes, 1983; Rutter, 1986), and a number of these children may be at high risk for further depressive episodes (Kovacs et al., 1984b). In addition, there have been indications that early onset of depressive disorders during childhood may be linked to persistence of depression into late adolescence and
adulthood (Clarizio, 1989; Giles, Jarrett, Biggs, Guzick, & Rush, 1989; Harrington, Fudge, Rutter, Pickles, & Hill, 1990; Kovacs et al., 1984a; McConville, 1982; Poznanski, Krahenbuhl, & Zroll, 1976; Reinherz, Frost, & Pakiz, 1991; Sorenson, Rutter, & Aneshensel, 1991; Venzke et al., 1987) suggesting the importance of early and accurate diagnosis and treatment. In some cases, severe depression in children and adolescents has been linked to greater numbers of emotional and behavioral problems, scholastic underachievement, internalizing and externalizing behaviors and drug abuse (Reinherz et al., 1991). McConville (1982) suggested that reversing depression in children is extremely difficult and argued that early assessment and treatment of depression in children is essential. Venzke and associates (1987), following their review of the literature on childhood depression, agreed that the evidence to date seems to indicate that children do manifest depressive symptoms that are difficult to reverse and that may persist into adolescence and adulthood if not successfully treated. Kovacs and her associates (1984a) who conducted a longitudinal investigation of major depression and dysthymia in children aged 8-13 years concluded:

The study of the depressive disorders in the school-age years is both plausible and warranted. These conditions are more persistent than hitherto thought. Furthermore,
the prevalence of scholastic failure, school-related problems, and poor past adjustment highlight the "developmental cost" of both depressive and other psychiatric illnesses in juveniles and underscore the desirability of effective and early identification and intervention. (p. 236)

It would appear that the continuing uncertainty regarding the parameters of depression in children and adolescents presents a situation of untenable risk for these children, a number of whom apparently may be misdiagnosed or missed altogether and therefore receive no or inappropriate treatment which may have significant negative effects in later life.

A related problem in assessing depression in children which reflects the lack of clear parameters is observed in the frequent difficulty in determining whether the depression is primary or is secondary to some other disorder. Recent studies have indicated that depressive disorders in children and adolescents may occur in combination with one or more other distinct emotional or behavioral disorders (e.g., Anderson, Williams, McGee, & Silva, 1987; Bierderman, Newcorn, & Sprich, 1991; Gizynski & Shapiro, 1990; Graham, 1979; Jensen, Burke, & Garfinkel (1988); Kashani, Cantwell, Shekim, & Reid, 1982; Kovacs et al., 1984a, 1984b; Marriage, Fine, Moretti & Haley, 1986;

After a review of 24 quantitative studies of children with psychiatric disorders, Beardslee, Bemporad, Keller, and Klerman (1983) concluded that the most common of all symptoms was depression. In Anderson's and associates' 1987 study of 792 preadolescent children, 55% of 219 children identified with DSM-III disorders were found to have more than one disorder, and the most prevalent overlapping disorder category was depression-dysthymia. This pattern of coexisting disorders is not dissimilar to depression in adults which not uncommonly coexists with disorders such as anxiety, phobias and alcoholism (APA, 1987; Kovacs et al., 1984a; Merikangas, Lackman, Prusoff, Pauls, & Weissman, 1985). However, the parameters of depression in children have not yet been as clearly defined as for depression in adults making differential diagnoses more complex in children.

It would appear that one of the major problems in defining depression in children is in distinguishing manifestations of depression as a syndrome as distinct from depressive symptom manifestations associated with other disorders common to children and adolescents. This problem again reflects the ongoing lack of agreement among
researchers and clinicians as to symptom criteria. From a clinical standpoint, these uncertainties can have far-reaching concerns regarding treatment efficacy in child and adolescent populations; of obvious concern are the implications for undiagnosed and untreated children and adolescents, if in fact, depression is persistent and enduring as the literature seems to indicate (Clarizo, 1989; Harrington et al., 1990; Kovacs et al., 1984a; Poznanski et al., 1976; Reinherz et al., 1991; Sorenson et al., 1991).

In consideration of the apparent, not infrequent, coexistence of depression in children with other disorders, Anderson et al. (1987) have warned that "...single-disorder studies warrant a degree of caution in looking for correlates of individual disorders as a guide to their origin, without careful exclusion of the contribution to the correlation from other coexisting disorders" (p. 75). Kovacs et al. (1984a) commented that there appears to be limited data on whether depression in children can be even be differentiated from other childhood behavioral and emotional disorders by "causal", demographic, or clinical variables. Trad (1987) remarked:

While behavior problems do appear in depressed children they may overlap with depression or may predict the onset of depression, and they tend to be less severe than those diagnosed with genuine behavior disorders,
which are often chronic and of greater magnitude. (p. 32)

Following an examination of various childhood disorders, Quay, Routh and Shapiro (1987) called for additional studies comparing syndromes to one another to provide needed information about the ability to discriminate between disorders and to reliably diagnose them. Their recommendation was echoed by Venzke et al. (1987) who concluded their literature review of childhood depression with suggestions for investigation into several topic areas of depression in children including clearer differentiation between depression and other psychopathological disorders in children as well as further clarification and identification on the content and boundaries of depression in children.

One emerging area in the literature related to this issue is investigation into the association between depression and conduct disorder. Research has generally supported aggressive and antisocial behavior as features of depression in children and adolescents (Cytryn, McKnew, & Bunney, 1980). Aggressive and antisocial behaviors were initially suggested as indicators of masked depression in children in the 1960's by Glaser (1967) and later by Cytryn and McKnew (1972); more recently both behaviors have been included as an age-specific "associated feature" in the criteria for depression in The Diagnostic and Statistical
Manual of Mental Disorders, Third Edition (DSM-III) (APA, 1980) and in the more recent revised edition, DSM-III-R (APA, 1987). There have been inconsistencies, however, reported in recent studies (Carlson & Kashani, 1988; Digdon & Gotlib, 1986; Geller, Chestnut, Miller, Price, & Yates, 1985; Gizynski & Shapiro, 1990; Politano, Edinger, & Nelson, 1989; Weiss et al., 1991) in regard to whether aggressive acting-out is a manifestation of depression in children and adolescents and whether the manifestation varies with age (generally assumed to occur more frequently in adolescents than children).

Several empirical investigations (Carlson & Cantwell, 1980; Cole & Carpentieri, 1990; Craighead, 1991; Harrington et al., 1991; Marriage et al., 1986; McDermott, 1980; Mitchell, McCauley, Burke, & Moss, 1988; Nieminen & Matson, 1989; Puig-Antich, 1982) have lent some support to an apparent overlap of depression and conduct disorder, one of the most frequently diagnosed childhood behavioral disorders (APA, 1988; Kazdin, 1987). Kazdin (1987) further reported that estimates of clinical referrals to outpatient psychiatric clinics have indicated that one-third to one-half of all child and adolescent cases were for problems of aggressiveness, conduct problems, and antisocial behavior. Rapoport and Ismond (1990) in their book, DSM-III-R Training Guide for Childhood Disorders, stated that major depression
frequently occurs in males during childhood who have been diagnosed as conduct-disordered and that dysthymia continues to be underdiagnosed in association with conduct disorder.

Most investigations to date have been prevalence studies with differences in the coexistence of depressive and conduct disorders ranging as high as 32% to 37% (Carlson & Cantwell, 1980; Puig-Antich, 1982) to rates ranging as low as 7% to 11% (Kovacs et al., 1984a). Trad (1987) purported that such findings may suggest a correlation between aggression and certain types of depression in children and adolescents. It has been similarly hypothesized by others (Kashani et al., 1982) that some depressed children may adopt aggression toward others as a coping response style while others may adopt a more internal, (ie., somatic), response style to depression. A few recent studies have focused on comparing depressed and conduct-disordered children and adolescents in terms of type of symptom variables that are common to, or discriminate between, the two groups, but these have tended to be single variable studies, e.g., self-image (Koenig, 1988); suicidality (Apter, Bleich, Plutchik, Mendelsohn, & Tyano, 1988); aggressive acting-out (Gizynski & Shapiro, 1990; Hodges & Craighead, 1990).

There are no known studies that have attempted to discriminate between depressed and conduct-disordered
children and adolescents on a large number of behavioral symptoms previously identified in the literature as associated with childhood depression. Such information would be expected to help clarify the parameters between the two disorders while allowing for the coexistence of both disorders if warranted in some cases as has been suggested (see e.g., APA, 1980, 1987; Rapoport & Ismond, 1990).

In summary, the literature to date on the parameters of assessment in childhood depression has been far from conclusive although Finch and Saylor (1986) point out that the emphasis has shifted to defining differences and similarities between childhood and adult depression as opposed to previous efforts to draw a clear distinction between the two. What does appear to be evident is that depression in children and adolescents does exist with sufficient prevalence to justify its investigation; that it may in some respects be similar to adult depression but dissimilar in other respects; that it is oftentimes expressed behaviorally in children due to developmental constraints on cognitive, affective, and social expression; that it may be associated with conduct disorder (as well as other childhood disorders); and that if untreated it may persist into adulthood.

Since the initial acceptance of the concept of depression in children as a clinical disorder, a number of
behavioral symptoms, e.g., masked depressive symptoms and associated features, have been hypothesized to be manifestations of depression in children without any consistent empirical support as to whether any, or all, of these behaviors fall within the parameters of depression as a syndrome or are manifestations of other childhood disorders which may, or may not, include depressive symptomatology. Data collected from this investigation is expected to contribute to the empirical knowledge in furthering an understanding of the behavioral parameters in the assessment of depression in children and adolescents through the identification of common problem behaviors displayed by depressed children and adolescents. Identification of the behavioral dimensions of childhood depression may eventually be useful in several ways: (1) clarifying areas in which children's behavioral expression of depression may be distinct from or similar to that of adult criteria making diagnosis of children more valid and thereby increasing the likelihood that a greater number of depressed children will be recognized and made available for treatment; (2) allowing for comparisons of age-related behavioral symptoms within the child and adolescent population with the possibility of further refining the diagnostic process; and (3) allowing for further discrimination between childhood depression and another
prevalent childhood disorder, conduct disorder, in which depression may be a secondary or associated feature.

**Statement of the Problem**

It would appear that a number of children and adolescents suffer from some form of depressive disorder. It would also appear that an unknown number may remain unidentified and possibly face a greater risk of continued problems throughout their childhood and into adulthood due to lack of treatment or inappropriate treatment. A number of behavioral symptoms have been associated with depression in children and adolescents, e.g., masked depressive symptoms and associated features in *DSM-III* and *DSM-III-R*, without any consistent empirical support as to whether any or all of these behaviors fall within the parameters of childhood depression as a syndrome or are manifestations of other disorders which may include depressive symptomatology for children. In addition, the literature seems to indicate an overlap in depression and conduct disorder in children and adolescents with some investigators suggesting a possible subset of depression in children and adolescents that manifests primarily in aggressive or antisocial behaviors (see e.g., Kashani et al., 1982). It would also seem from empirical findings that children and adolescents, at least to some extent, may manifest adult symptoms of depression to varying degrees. What is overwhelmingly
apparent is the overall lack of definitive parameters regarding behavioral phenomenology in childhood depression.

The intent of this study was to attempt to expand the range of behavioral indicators which may help target additional depressed children currently not being identified and treated, as well as to help discriminate between behaviors that may be masked or otherwise associated with depression in children and adolescents from those associated with another more commonly diagnosed childhood disorder, conduct disorder. It is only through more accurate diagnosis of troubled children and adolescents that effective treatment can be determined and administered and perhaps prevent ongoing problems for this population in later years.

Specifically, the purpose of this investigation was: (1) to identify behaviors common to children and adolescents identified as clinically depressed in an inpatient population; (2) to identify age differences in behaviors between depressed children and depressed adolescents; and (3) to identify differences in behaviors between clinically depressed inpatient children and adolescents and nondepressed inpatient children and adolescents diagnosed as conduct-disordered.
Theoretical Rationale

The research undertaken for this dissertation is based on the assumption that there are developmental differences in how depression is manifested and therefore, it is likely that there are manifestations of problem behaviors common to depressed children and adolescents that are not acknowledged by the currently accepted adult criteria for depression. Some of these behaviors may be similar to earlier observations theorized by proponents of masked depression (e.g., Cytryn & McKnew, 1972; Glaser, 1967), such as aggressive and antisocial behavior or somatic complaints, based on the continued report of these behavioral manifestations throughout the research literature (see e.g., APA, 1980, 1987, 1988; Kashini et al., 1982; Weiss et al., 1992).

It also seems apparent that adult criteria can be used to effectively diagnose some children and adolescents. It is further assumed, therefore, that depression in children and adolescents may be more accurately described by a combination of the prevailing theoretical notions, i.e., masked depression, adult criteria, and developmental differences, to varying degrees. That is, might it be feasible that some children may manifest sufficient adult depressive symptomatology which more closely resembles adult depression as the child moves developmentally closer to
adulthood, while other children may manifest other age-related depressive behaviors that do not initially appear to be symptomatic of clinical depression and are insufficient to meet adult criteria?

There is some empirical support indicating that childhood depression may be similar to adult depression and can be diagnosed in children using adult criteria (Cytryn et al., 1980; Finch & Saylor, 1986; Garber, 1984; Trad, 1987). The most commonly used adult diagnostic criteria in the literature appears to be the DSM-III (APA, 1980) followed by its more recent edition, the DSM-III-R (APA, 1987). Research has lent support for the use of DSM-III criteria as a reliable instrument with children in comparisons with other diagnostic criteria (Carlson & Cantwell, 1980; Carlson & Cantwell, 1982; Cytryn et al., 1980; Trad, 1987). However, the apparent emergence of various symptoms at different developmental levels evidenced by other investigations (Finch & Saylor, 1986), has raised concerns about the depressed children who are almost certainly missed because they do not fully meet adult criteria and further has lead to suggestions that the differences between adult and childhood depression may be as equally significant as the similarities (Trad, 1987). While some investigators such as Lobovits and Mandal (1985) acknowledge the usefulness of DSM-III criteria as a ...
starting point in untangling the confusion surrounding the diagnosis. . .of childhood depression" (p. 52), others caution that while adult criteria need not be abandoned, adult criteria should only be used as preliminary guidelines in research with children and that refinements need to be made with the addition of age-specific symptoms and the deletion of age-inappropriate manifestations (Carlson & Garber, 1986; Garber, 1984). Due to the continuing confusion regarding the nature and diagnostic assessment of depression in children, some researchers (e.g., Finch & Saylor, 1986) have strongly advocated the use of multiple criteria and multiple assessment techniques, such as clinical diagnostic interviews, self-report instruments, and ratings by significant others, such as parents and teachers, in investigating depression with child and adolescent populations.

Politano, Edinger, and Nelson (1989) recommended cautious interpretation of studies utilizing adult-based criteria to assess depression in children and suggested the need for greater emphasis on the behavioral dimensions of childhood depression. The assumption that children frequently do not understand complex concepts such as "self-esteem" or "guilt", cannot express subjective feelings due to the lack of a sufficient affective vocabulary, and that
they, therefore, may express their problems behaviorally is a generally accepted concept (APA, 1988).

The feasibility of age-specific differences linked to childhood depression and the depressive behavioral manifestations of children and adolescents was first proposed in the 1960's with the concepts of "masked depression" and "depressive equivalents" (Cytryn & Mcknew, 1972; Glaser, 1967; Toolan, 1962) which were never empirically validated (Rapoport & Ismond, 1990). Lack of agreement on diagnostic criteria between researchers and difficulty making distinctions between masked depression and other childhood disorders--since a number of behavioral disorders were assumed to have an underlying depression (Trad, 1987)--were primary reasons for generally abandoning the concept in the mid 1970's due to its complexity (Cytryn et al., 1980; Garber, 1984; Trad, 1987). However, behaviors previously identified by Glaser (1967) and Cytryn and Mcknew (1974) as indicators of masked depression, such as aggressive acting-out or antisocial behavior, somatic complaints, anxiety, eating and sleep disturbances, and hyperactivity, have continued to be identified and associated with depression in children and adolescents in the literature (e.g., APA, 1988; Kashani et al., 1982; Lesse, 1981; Reinherz et al., 1990; Strausse, Forehand, Frame, & Smith, 1984; Weiss et al., 1992). In addition,
aggressive and antisocial behavior in adolescents and separation anxiety and somatic complaints in children have been acknowledged as age-related "associated features" of adult criteria for depression in the *DSM-III* (APA, 1980) and in the *DSM-III-R* (APA, 1987). In a recent educational publication on childhood disorders published by the APA (1988), children are described as having the same symptoms of depression as adults but, due to developmental factors, possibly manifesting their depression in behavioral ways which may not be recognized by adults as indicators of depression. Some key behaviors expressed by children that may be indicators of depression included: changes in eating and sleeping patterns; a sudden drop in school performance; crying; unexplained irritability or shouting and complaining; aggression, antisocial behavior, and refusal to cooperate; somatic complaints (aching stomach, legs, or arms) that are not explained medically; obsessive-compulsive behaviors such as wringing hands or pulling or rubbing one's hair, clothing, skin, or other objects; slowed body movements, monotonous speech, or muteness; drug or alcohol use; and expressions of fear or anxiety (APA, 1988).

While it appears that those earlier attempts to define differences in children's and adult's manifestations of depression through masked depressive symptoms/depressive equivalents went too far in encompassing too wide a range of
behaviors resulting in confusion rather than clarification, the original premise, i.e., children may express depression differently than adults due to developmental constrictions, continues to be espoused, with modifications, by the developmental theorists and not entirely dismissed by the proponents of the adult model. The ongoing debate in defining if and how affect and behaviors related to depression differ across developmental stages then appears to be a matter of degree. That is, it would appear that the proponents of masked depression, adult criteria, and developmental theory are essentially in agreement in the basic assumption that children and adolescents probably manifest at least some symptoms of depression differently than adults due to generally accepted developmental differences in cognitive, affective, and social abilities. A primary difference between supporters of adult criteria versus developmentalists seems to be that the former recognizes some, although limited, age-specific associated features of the syndrome in addition to adult criteria while the latter recognizes age-specific symptoms in lieu of, or as distinct from, adult criteria (and, therefore, somewhat similar to "masked" symptoms or "depressive equivalents" in that adult criteria may not need to be met entirely for a child to be considered depressed). What remains unclear is the extent to which distinctive developmental differences
exist among symptoms or associated features for depression in children with recent studies reporting inconsistent results in finding expected age-related differences (Mitchell et al., 1988; Weiss et al., 1992). The question of to what extent symptom manifestations are different between depressed adults, adolescents and children; what are the behavioral correlates specific to age; and can they be distinguished from other childhood disorders with similar or overlapping symptoms (in similar ways that adult disorders can be distinguished) continue to be left unanswered with little empirical data available to date to justify recommended changes (Kashani, Rosenberg, & Reid, 1989).

In summary, although there is an increasingly apparent consensus that children may manifest depression in behavioral ways different than adults, the issue of which behavioral symptoms are, indeed, associated with depression and the extent to which they vary with age remains unresolved; there continues to be wide variations in described behavioral manifestations as a reflection of the ongoing controversy between proponents of the adult-criteria and developmental theorists (Finch & Saylor, 1986). Since children do apparently manifest pathology primarily in behavioral ways (as opposed, for example, to reporting subjective feeling states), it would seem that identification of behavioral manifestations common to
children and adolescents who have otherwise been identified as depressed by methods which have received some validation in the literature for usefulness in assessing depression in children (e.g., DSM-III criteria and/or by a generally accepted rating scale, such as the Children's Depression Inventory (CDI) (Kovacs, 1980/81; 1983) would be helpful in the initial stages of defining the parameters of the disorder and may ultimately assist in identifying other children who are depressed and may not otherwise be identified because they fail to meet the full criteria for adult depressive disorders.

The present study was designed to investigate the possible behavioral correlates related to the presence of depression in children and adolescents that are distinct from behaviors of nondepressed children and adolescents and to determine the extent to which those behaviors vary as a function of age. The method used in this investigation was to compare clinically depressed children and adolescents diagnosed by different assessment methods (e.g., psychiatric and psychometric assessments) with clinically nondepressed children and adolescents on 40 behaviors previously suggested in the research literature to be associated with childhood depression. To date, there are no other known studies that have made behavioral comparisons using a large number of behavioral variables.
Definition of Terms

Depression was defined in this investigation as a syndrome, i.e., "a grouping of symptoms that occur together and that constitute a recognizable condition" (APA, 1980, p. 368) as opposed to a symptom, i.e., "a [single] manifestation of a pathological condition" (APA, 1980, p. 368). Depression was further defined for the second, third and fourth research questions in this study by the presence of a psychiatric diagnosis of depression using DSM-III criteria for any of the following affective disorders: major depression, recurrent or single episode; dysthymia; atypical depression; and adjustment disorder with depressed mood. Depression was also defined by significant scores on the Children's Depression Inventory ([CDI], Kovacs, 1980/81; 1992) for the first and third research questions.

Conduct disorder was defined in this study as the presence of a psychiatric diagnosis of conduct disorder using DSM-III criteria and included the following subtypes: socialized, nonaggressive; socialized, aggressive; undersocialized, nonaggressive; and undersocialized, aggressive.

Behavioral symptoms were defined as hypothesized manifestations of depression in children and adolescents that have been reported in previous research literature.
Associated features were defined as "features that are often, but not invariably, present" (APA, 1980, p. 31) in a psychiatric disorder as specified in DSM-III and DSM-III-R. Associated features of special interest in this study were those that were "age-specific" for children and adolescents, for example, separation anxiety and somatic complaints for prepubertal children and negative, antisocial behavior and school difficulties for adolescents with major depression.

POR behaviors were defined as behaviors that have been identified in the literature as behavioral symptoms or associated features of childhood depression that were then matched with a problem behavior list pooled and coded by the original researchers from behaviors identified as a part of the subjects psychiatric intake using the Problem Oriented Record ([POR], Weed, 1971) method of medical record format. Those 40 matched behaviors were then recoded by this investigator for use in this study as POR behaviors.

Children was defined as subjects under the age of 13 years.

Adolescents was defined as subjects aged 13 years or older.
Research Questions

Research questions investigated in this study were:

(1) Is there any difference between depressed and nondepressed children and adolescents on POR behaviors when depression is psychometrically defined by scores on the CDI?

(2) Is there any difference between depressed children and adolescents and nondepressed conduct-disordered children and adolescents on POR behaviors when depression is defined by psychiatric diagnosis using DSM-III criteria?

(3) Is there any difference between depressed children and adolescents and nondepressed conduct-disordered children and adolescents on POR behaviors when depression is defined by psychiatric diagnosis using DSM-III criteria and by CDI scores?

(4) Is there any difference between depressed children and depressed adolescents on POR behaviors when depression is defined by psychiatric diagnosis using DSM-III criteria?

Description of the Sample

Data for this investigation was drawn from an archival data bank collected at four different child psychiatric hospitals over a seven year period and pooled by different researchers. Archival data retrieved for the purposes of this study included demographic information (i.e., age, sex, and race), DSM-III diagnosis, total score on the CDI, and
problem behaviors (POR) identified during the psychiatric inpatient admissions process.

The original pool of subjects included 630 children and adolescents ranging in age from 5 to 20 years. All children and adolescents admitted to each of the four psychiatric hospitals were included in the original collection of data. Three of the four facilities were public state institutions located in Ohio, Virginia, and South Carolina which tended to serve low to lower-middle socioeconomic populations; the fourth hospital was a private psychiatric facility in Ohio serving a primarily middle to upper-middle socioeconomic population. The four research questions were analyzed with different research samples from the total population of subjects. Research sample size for the four research questions ranged from a total \( N \) of 451 to a total \( N \) of 91 children and adolescents.

**Limitations of the Study**

There were several limitations in this investigation of depression in children and adolescents. The population from which this study was drawn consists of inpatient children and adolescents from four psychiatric hospitals; therefore, the generalizability of these findings is restricted to clinical inpatient child and adolescent populations. Since three of the four hospitals serviced primarily low to low-middle socioeconomic groups, those groups are over-
represented in this population which further restricts generalizability of the results within clinical populations. Because socioeconomic status for each subject was not obtained by the original researchers, it was not possible to determine whether socioeconomic differences existed between groups which may be an extraneous variable effecting results.

The research population has some geographic diversity since it was taken from hospitals in three different states. However, it is not known whether the demographics are representative of the population as a whole and therefore, is a limitation.

Due to the use of archival data, no information is available regarding the onset of POR behaviors used as discriminant variables; therefore, it was impossible to determine whether specific behaviors were related to the onset of depression, or conversely, whether the depression was precipitated or compounded by some other unknown condition. Although this is a limitation, one purpose of the study was to shed some light on behaviors that discriminate between depressed versus conduct-disordered children and adolescents rather than investigating causal factors. Also, the nature of the design of this study was primarily to increase empirical knowledge concerning the broad parametners of phenomenology in childhood depression
by identifying some potential behaviors that may discriminate between depressed and nondepressed children and adolescents rather than an attempt to determine specific associations between specific behaviors and childhood depression.

Several types of depressive disorders were included in the depressed research groups that were defined by DSM-III psychiatric diagnosis while, in fact, each specific disorder may have unique types of behavioral symptoms or associated features that may not hold true for another, and although that issue is beyond the scope of this research, it is a limitation in this study. High scores on the CDI were used as severity measures in the first and third research questions, but there was no control for the severity of depression in the research samples used in the second and fourth research questions.

Because adult criteria, i.e., DSM-III psychiatric diagnosis and scores on the CDI (which is a downward extension of an adult-based depression inventory), were used as criterion variables for assessing depression in subjects, undoubtedly some depressed children and adolescents from the population were not included in the study and this is acknowledged as a limitation. However, the use of these measures seemed justified because: (1) there is no current existing developmental criteria for depression that has been
validated for use with children and adolescents; (2) current empirical findings indicate that adult criteria are successful in diagnosing a number of depressed children and adolescents; and (3) DSM-III and the CDI are both widely used measures for childhood depression in other studies allowing for comparison between studies.

Another acknowledged limitation of this study is the use of archival data which prevented this investigator from having any control over the collection of data and necessitated reliance on the reports of the original researchers. Uncontrolled variables such as testing procedures by different investigators, differences in demographics, and small sample sizes for the third and fourth research questions (N=91 and N=103, respectively) could have affected the results. Care should be taken in generalizing the results, keeping these limitations in mind.
CHAPTER 2
REVIEW OF THE LITERATURE

Introduction

Although there seems to be general consensus among researchers that depression can, and does, occur in children and adolescents, there continues to be lack of agreement as to the structure of the syndrome (Weiss et al., 1992). The literature in the past decade has focused much attention on the assessment of depression in children with much of the continued debate surrounding the issues of defining similarities and differences between childhood and adult depression and whether the generally accepted practice of applying adult criteria to children is, in fact, valid or if acknowledged developmental differences between children and adults are significant enough to warrant changes to adult criteria. A related issue in assessment that has been gaining attention in the literature is the apparent coexistence of depressive disorders with other childhood disorders, such as conduct disorder. Since the parameters of assessment of depression in children remain undefined, differential diagnosis can be difficult in determining whether the depression is primary or is secondary to the conduct disorder. The following review of the literature
will attempt to summarize what is currently known about the assessment of childhood depression. The historical development of the most prevalent assessment models will be reviewed followed by relevant studies on developmental differences in symptom manifestation in depressed children and adolescents and studies comparing depressed and conduct disordered youth.

**Historical Perspectives on the Assessment of Childhood Depression**

**Psychoanalytic Model.** Historically the acceptance of depression as a clinical affective disorder in children has been the subject of ongoing controversy. Prior to the 1960s, psychoanalytic models were the accepted theoretical basis for understanding clinical depression in adults. As cited by Trad (1987), psycholanalytic researchers of depression, such as Abraham, Freud, and Rado, regarded early childhood experience as necessary for the development of adult depression, i.e., depressive symptoms in adults were viewed retrospectively as manifestations of trauma in previous developmental stages during childhood. Most psychoanalytic theories hypothesized that the onset of depression was precipitated by some real or imagined loss; the nature of the loss and the intrapsychic level at which the individual reacted to that loss differed between theories and determined age limits at which depression could
alledgedly occur (Finch & Saylor, 1986). In most classic psychoanalytic theories, depression was viewed to be dependent on cognitive, affective, and intrapsychic mechanisms (e.g., a well-internalized superego and "pathological guilt" necessary for the presence of melancholia) which were not sufficiently developed in children (Finch & Saylor, 1986; Kovacs & Paulauskas, 1984; Trad, 1987).

Little attention was paid to actual symptoms of depression in childhood until the renowned studies of infant anaclytic depression by Spitz (1946) in which institutionalized infants were observed to manifest depressive-like symptoms such as apathy, marked withdrawl, listlessness, minimal movement, sad face, eating and sleep disturbances, weight loss, unresponsiveness and stupor. Although the results of Spitz's data indicated that depressive symptoms could occur in children who had obtained sufficient developmental growth to experience the loss of a significant object (i.e., as early as 9 months of age with the cognitive evolution of object permanence), many argued that the syndrome described by Spitz did not constitute "true" depression (Finch & Saylor, 1986; Trad, 1987).

In general, the psychoanalytic approach viewed depression as a syndrome analogous to adulthood and thus virtually nonexistent in childhood (Rie, 1966). The
argument against childhood depression continued to exert considerable influence until the late 1960's as evidenced by general acceptance of conclusions offered by investigators such as Lapouse (1966). Finding markedly widespread depressive symptoms in 482 randomly selected children aged 6 to 12, Lapouse attributed the high prevalence of symptomatic behavior to indications of normal developmental phenomena rather than to a psychiatric disorder, maintaining the prevailing belief that the cognitive, affective, and intrapsychic mechanisms linked to adult depression were not sufficiently developed in children in order for true depression to be experienced by children (Finch & Saylor, 1986; Trad, 1987).

**Masked Depression/Depressive Equivalents Model.** A prevalent theoretical model developed during the 1960's and 70's purported that depression in children did, in fact, exist but presented differently than in depressed adults in the form of masked depression (Cytryn & McKnew, 1972; Glaser, 1967; Lesse, 1977; Toolan, 1962). This viewpoint suggested that because children do not have the capability to express themselves verbally and affectively in the same manner as adults, they manifest depression through a variety of behavioral equivalents other than the recognized signs and symptoms of adult depressive disorders. These behavioral equivalents, sometimes referred to as "depressive
equivalents" included a variety of behavioral symptoms such as aggressive acting out, delinquent behavior, school underachievement, truancy, hyperactivity, enuresis, sleeping and eating disturbances, phobias, and somatic complaints, and were believed to "mask" an underlying, yet unrecognized, depressive disorder (Cytryn & McKnew, 1972; Finch & Saylor, 1986; Glaser, 1967; Trad, 1987). Glaser (1967) argued that the psychopathology of the child featured depressive elements that had a dynamic influence on the child's functioning, and thus a diagnosis of depression was warranted even though there may be no manifestation of clear mood changes or dysphoria as in depressed adults (cited in Trad, 1987).

Proponents of the concept of masked depression were some of the first to suggest developmental differences in depressive symptom manifestation. For example, Toolan (1962), in describing depressive equivalents in children, discussed how expression of depressive affect is influenced by development. Developmental level was also emphasized by Glaser (1967) who specified two levels of depression in children. He purported that infants and young children experience "deprivation reactions" manifesting in retardation of specific areas of development, e.g., physical, cognitive, and emotional development, while older children manifest their depression in the form of a variety
of behavior problems, such as disobedience, truancy, temper tantrums, running away from home, and delinquency.

Cytryn and McKnew (1972), researchers at the National Institute of Mental Health (NIMH), did extensive studies with depressed children and proposed three types of childhood depression: chronic depressive reaction; acute depressive reaction; and masked depressive reaction. Depressions in children with chronic depressive reactions appeared to have a strong genetic base with no single, clear-cut precipitator to the depression, while acute depressive reactions in children always had a precipitating cause (frequently a significant loss in the child's life) but no apparent family history of depression. Other differences were noted in duration of the illness and premorbid adjustment. Clinical features for the acute and chronic depressive reactions were found to be similar and included severe impairment in the social and academic adjustment of the child; disturbance in appetite and sleep patterns; psychomotor retardation; feelings of hopelessness, helplessness, and despair; and occasionally suicidal ideation or gestures. Cytryn and McKnew (1972) indicated, however, that the most common type of childhood depression was masked depressive reaction which did not clearly manifest as a clinical depression at all but rather as a variety of primary emotional disorders including aggressive
behavior, delinquency, psychosomatic illness, hypochondriasis, and hyperactivity. Cytryn and McKnew (1972) claimed that although these children periodically looked or acted depressed, their underlying depressed state was most often inferred by their depressive fantasies and therefore, best diagnosed through the use of projective tests. Later Cytryn and McKnew (1974) proposed a classification system of depression in children based on the assumption that defenses are used by the child to cope with the depression and the mode of those defenses are reflected by the child's development. They suggested that depression was initially expressed by children through depressive themes in fantasy and play, followed developmentally by verbal expressions of depressive affect (e.g., guilt, low self-esteem, helplessness, and feeling unloved or suicidal—these were most often seen in acute depressions of otherwise fairly well-adjusted children). When the verbal level of defense failed as a coping mechanism, depression could be observed in behavioral manifestations, such as crying, changes in appetite and sleep, and psychomotor retardation not unlike some adult manifestations. Masked depression, however, was theorized to manifest in more overt behaviors such as hyperactivity, aggression, delinquency, psychosomatic complaints, and school failure. These problem behaviors were viewed as being used defensively by the child
"...to ward off the unbearable feelings of despair" (Cytryn & McKnew, 1979, p. 327).

Nosological confusion was intensified following unsuccessful attempts to define diagnostic criteria for masked depression in children. Following the controversial NIMH conference on childhood depression in September, 1975 (Schulterbrandt & Raskin, 1977), earlier views that depressive symptoms in children were part of normal development continued to be argued by the minority such as Lefkowitz and Burton (1978) who suggested that if masked depression or depressive equivalent symptoms were used for assessment purposes, any child would be able to meet the criteria for depression (Finch & Saylor, 1986). In their annotated bibliography of depression in children and adolescents, French and Berlin (1979) expressed a similar view commenting that Lesse's (1977) discussion of masked depression and depressive equivalents "covers so much ground as to raise the question as to what forms of abnormal behavior are in fact not masked depression" (p. 256). Others (e.g., Gittelman-Klein, 1977; Kovacs & Beck, 1977) emphasized that the various disorders described as masking depression included nearly all the possibilities of childhood psychopathology. Kovacs and Beck (1977) concluded that the concept of masked depression was essentially worthless as a diagnostic tool due to its redundancy and over-
inclusiveness. And, in 1980, Cytryn and McKnew in a landmark study (Cytryn et al., 1980) revised their previous position on masked depression conceding that the concept had led to increasing confusion about depression in children. In a turn-about move, they concluded that childhood and adult diagnostic criteria for depression were very similar and suggested that the DSM-III was a valid instrument for diagnosing depression in children. Quay et al. (1987) explained the difficulty with the concept as follows:

...it was unclear how one was to go about identifying the supposed underlying depressed state. If the depressed state could be identified by explicit criteria, it was not useful to describe it as "masked." If certain subtle criteria are to be used, these must be specified before one can test the hypothesis of masked depression in children. (p. 519)

In summary, masked depression has not proven to be a useful theoretical concept in increasing the empirical knowledge and understanding about depression in children (Finch & Saylor, 1986) and has been generally abandoned following a number of major criticisms to include: (1) the lack of criteria to separate masked depression from other recognized childhood disorders such as conduct disorders, separation anxiety, attention deficit disorder, and somatic disorders; (2) the contradictory nature of the various
classificatory schemata leading to confusion in investigative efforts to define depression in children; (3) the lack of any clear connection between other childhood disorders and the presumed underlying depressive disorder; (4) the disqualification for diagnostic purposes of transient symptoms which may be clinically significant; and (5) the lack of reliability of depressive criteria for validation studies (Garber, 1984; Trad, 1987). Trad (1987), however, pointed out that the masked depression perspective did make a valuable contribution in calling attention to the atypical manifestations in some childhood depressions, particularly in the form of antisocial behavior. It is noteworthy that somatic complaints and "negativistic or frankly antisocial" behavior, previously viewed as indicators of masked depression, are now listed as associated features for children and adolescents, respectively, in the DSM-III-R, (APA, 1987) and separation anxiety for prepubertal children and antisocial behavior for adolescent boys in its predecessor, the DSM-III (APA, 1980), in recognition, albeit limited, of some age-specific differences in symptom manifestation.

Adult Model. Literature reviews by Finch and Saylor (1986) and Venzke et al., (1987) reveal that during the 1980's the most generally accepted view of childhood depression was based on a multifactor adult model which
recognized a standard set of criteria for both adults and children. According to the adult model, childhood depression was seen to exist as a clinical syndrome analogous to adult depression, and therefore children were believed to manifest similar depressive symptomatology as adults including: sadness, hopelessness, feeling worthless, excessive guilt, change in appetite, loss of interest in activities, recurring thoughts of death or suicide, loss of energy, helplessness, fatigue, low self-esteem, inability to concentrate, and change in sleep patterns (APA 1988; Garber, 1984; Kashini et al., 1981; McKnew, Cytryn, & Yahraes, 1983; Trad, 1987).

The most widely accepted criteria for assessing depression in adults has been the Research Diagnostic Criteria (RDC) developed by Spitzer, Endicott, and Robins (1978) and based on research criteria by Feighner and his associates (1972); later the RDC was modified and incorporated into the DSM-III (APA, 1980). Weinberg and his associates (1973) pioneered the use of the adult model with children by modifying Feighner's (1972) criteria (Cytryn et al., 1980; Lewis & Lewis, 1979). Weinberg's criteria included the following ten major categories of symptoms of depression in children: dysphoric mood, self-deprecatory ideation, aggressive behavior (agitation), sleep disturbance, changes in school performance, diminished
socialization, changes in attitude toward school, somatic complaints, loss of usual energy, and unusual change in appetite and/or weight (Weinberg, Rutman, Sullivan, Penick, & Dietz, 1973). Another more recent modification of an adult measurement of depression and now widely used in research is the Children's Depression Inventory (CDI) developed by Kovacs (1980/81; 1983; 1992) as a downward extension of the Beck Depression Inventory (Beck & Beamesderfer, 1974).

A comparison by Cytryn et al. (1980) of various childhood and adult criteria for assessing depression, including Cytryn and McKnew's criteria, Weinberg's criteria, the CDI, and the DSM-III, led the authors to conclude that the various criteria are very similar and that the DSM-III criteria are valid for diagnosing depression in children. They acknowledged the need for modification to include more features of depressive manifestation unique to children but encouraged universal acceptance of DSM-III criteria to reduce nosologic confusion and allow valid comparisons among empirical investigations by different researchers.

Likewise, Poznanski (1982) identified adult-like symptoms repeatedly described in depressed children (e.g., low self-esteem, social withdrawal, suicidal ideation, excessive fatigue, excessive guilt, reduced capacity to have fun) and suggested that adult criteria might be an applicable
diagnostic and research tool in childhood depression; however, Poznanski cautioned that manifestations of adult-like symptoms may take a different form in children, e.g., a decline in school performance for children in contrast to a decline in work performance for adults. Carlson and Cantwell (1980), in a study of 102 children aged 7 to 17 years, attempted to clarify the concept of masked depression and concluded that it was possible to use adult diagnostic criteria to diagnose major depressive disorder in children over the age of 7 years. Later, Carlson and Cantwell (1982) compared Weinberg's criteria and DSM-III criteria and found diagnostic agreement in 78.4% of the depressed children; the DSM-III was seen to be more accurate of the two. In a more recent study by Lobovits and Handal (1985) on the prevalence of depression among 50 latency-aged (8 to 12 years) children, assessment for depression based on a clinical interview with each child by two clinicians using DSM-III criteria for major affective disorder was compared to results of two depression scales, the CDI and the Personality Inventory for Children ([PIC-D], Froman, 1971) completed by the child and the parent respectively. Results indicated a 90 percent agreement between the clinicians on diagnosis; DSM-III criteria was therefore determined to be an acceptable instrument for assessment of depression in this age group. Ryan and Puig-Antich (1986), in replying to
developmentalists' concerns about the applicability of adult diagnostic criteria for depression with children, maintained that their studies confirm DSM-III's earlier stand stating:

Although some age-specific variations do exist, the symptom criteria are not different. Most of the variability among children, adolescents, and adults in what constitutes affective symptoms relates to the necessary adaptations in interview techniques essential to their proper assessment in young people, rather than in the nature of the symptoms themselves. Although the frequency of some symptoms does vary with age, and can be convincingly related to developmental patterns, their nature does not. (p. 425-426)

Following a review of the literature on the existence of depression in prepubertal children and adolescents, Angold (1989) seemed to agree with the use of adult criteria with children by suggesting that the full range of adult depressive symptoms may be expressed in children by ages 6 to 8 years.

Despite an increasing acceptance of DSM-III and other adult-based diagnostic criteria in assessing depression in children, other investigators caution about its limitations. An investigation of the efficacy of adult diagnostic criteria for childhood depression by Poznanski, Mokdros, Grossman, and Freeman (1985) reported that depression was
accurately diagnosed in the majority of the children studied using the adult RDC (Spitzer et. al., 1978) and DSM-III but that the adult criteria failed to account for discrepant information reported by the child and his or her parent. In addition, adult criteria failed to accurately or completely detect nonverbal ratings which were found to be strongly associated with depression in children. This seemed to suggest that although adult criteria may be sufficient in diagnosing depression in some children other children may be missed. Kovacs et al. (1984a) pointed out difficulties with DSM-III's differential diagnostic process with school-age children by citing examples in their longitudinal studies of depressed children of subjects who failed to meet the pertinent DSM-III criteria despite "an obvious dysthymic presentation" (p. 236) because the disturbance of mood was irritability, the duration fell short of the required one year for dysthymia, and one required symptom was lacking for diagnosis despite an otherwise long-standing picture of the depressive syndrome. Acknowledging that research with depressed children is inherently more complex than with adults because of developmental changes and the paucity of empirical knowledge on normal affective development, Kashani et al. (1981) suggested that although DSM-III has the advantage of uniform applicability by researchers, further empirical investigation is needed to determine what, if any,
refinements are needed in *DSM-III* associated features for use with children. Likewise, Verhulst (1989) questioned whether the use of adult diagnostic criteria with a disregard for possible developmental differences may be premature and may impede the accurate study and diagnosis of childhood depression.

Furthermore, in a review of approaches to depression in children, Trad (1987) commented that *DSM-III* criteria appeared to be superior to other diagnostic criteria used in assessing childhood depression, such as criteria using the earlier masked depression model, and that investigations comparing *DSM-III* with other diagnostic criteria have lent support to the reliability of adult-based criteria for children. However, he pointed out that although there are probably significant similarities between adult and childhood depression "... the differences may be equally significant. ..." (p. 31). Trad suggested that although *DSM-III* does take some developmental change into account, e.g., its acknowledgment of age-specific associated features, it does so in a limited way and that the most significant limitation of *DSM-III* criteria for depression when applied to children is its failure to comprehensively account for the disorder's probable age-sensitivity (i.e., in symptom manifestation).
Garber (1984) reported that the perspective of depression in children as analogous to adult depression has recently been challenged by developmental psychopathologists who reason:

that from a developmental perspective it is unrealistic to expect behavioral isomorphism in observed signs or symptoms of depression in children of different ages because there are important differences in the developmental progression of children's cognitive, linguistic, and socioemotional capacities that will produce differences in their interpretation, experience, and expression of depressive symptomatology over time.

(p.31)

Garber concluded that although a benefit of the adaptation of a single set of criteria for diagnosing depression in both children and adults has the potential advantage of providing uniformity across researchers, it remains unclear whether these criteria are, in fact, valid for use with children. It would seem, then, that although adult criteria, particularly DSM-III, appears to be a valid instrument for assessing depression in some children and adolescents, there are still many unanswered questions as to needed developmental refinements in adult criteria to accurately assess the population of children and adolescents as a whole.
Developmental Model. The developmental model of psychopathology gained initial acceptance during the 1970's. The developmental approach to depression is a multicausal, interactional model that views psychiatric analysis from a chronological continuum spanning birth to adulthood. Psychopathology is seen to emerge from the interaction of an individual's genetically endowed factors and the multiple environmental factors to which he or she is exposed within a chronological framework of development (Trad, 1987). Individual behavior is seen to continually transform with both progressions and regressions along the developmental axis. Rutter (1986), as cited in Trad (1987), notes that the developmental approach "accentuates mechanisms whereby interaction during one phase of development may modify responses at a later point of maturation by either sensitizing the individual to new stimuli or thwarting and stifling individual response" (p. 6). Pathology is thus viewed as being both interactional and multicausal.

Three issues of psychopathology—prediction, origin and time course of disorders, and behavioral manifestations—are emphasized by the developmental perspective and roughly correspond to traditional psychiatric nosology—prognosis, etiology, and clinical symptomatology. The developmental perspective, however, goes beyond traditional classification of childhood psychopathology by highlighting new dimensions,
variables, and parameters for a more inclusive and extensive nosology. For example, the link between earlier adaptation and later pathology is considered essential in accurate prediction of disorders. Additionally, developmental psychopathologists consider that the antecedents of adult pathology may be found in early failures to adapt to developmental tasks rather than in childhood disorders of similar type. As such, adult psychopathology need not be preceded by a similar disorder during childhood nor is the validity of childhood diagnosis of a disorder necessarily dependent on future episodes over the course of development into adulthood. Implications are that adult and childhood disorders should be evaluated independently in terms of natural course and prognosis. It is hypothesized that a more accurate reflection of the continuity between psychopathology in children and adults may be in terms of adaptation patterns than in isomorphic behavioral symptoms across time. A primary assumption of the developmental perspective is that behavioral manifestations of disorders vary with development as a result of changing capacities (affective, cognitive, and social) within the growing child and these advances are likely to influence the expression and meaning of a particular behavior at a particular phase of development. Thus, recognition and assessment of pathology, or deviation from expected patterns at each
developmental level, are dependent on an accurate understanding of normal affective, cognitive, and social domains of development (Garber, 1984).

French (1979), commenting on the developing concept of depression in children, stated that "the developmental perspective, obviously crucial to our understanding of depression in children, has not received as much attention as one might hope. . . ." (p. 24). Within the next decade, the importance of developmental considerations in childhood depression obtained more widespread attention and acceptance. An example of this changing viewpoint was expressed by the Group for the Advancement of Psychiatry (1972) in acknowledging the importance of therapists to be aware of different age-specific presentations of affective disorders in conjunction with different developmental phases "since affective disorders occur in the context of specific phases of development" (cited by Trad, 1987, p. 344). An initial task of the therapist, then, was seen to be that of assessing developmental variables, such as the child's biological maturation and cognitive, emotional and social status.

The developmental perspective of childhood depression views reliance on adult-based criteria, such as DSM-III (now DSM-III-Revised [DSM-III-R]) or RDC, to be insufficient for several reasons including: (1) the scant and incomplete
list of symptoms, (2) the lack of adequate consideration of the different developmental stages of children as separate from adults, and (3) the elusiveness of symptoms in children due to their rapid changes in development. It is suggested by developmental theorists that adult diagnostic criteria may, therefore, need to be modified to reflect children's developmental alterations (Trad, 1987). Developmental psychopathologists such as Kovacs and Paulauskas (1984), Cicchetti and Schneider-Rosen (1984), Garber (1984), Rutter (1986), and Trad (1987) have argued that adult-based diagnostic criteria do not take sufficient account of possible age-related differences in both the definition of depression and in the manifest expression of the syndrome. It has been suggested that depression cannot be defined by symptom characteristics applied across the lifespan due to the influence of development on cognitive abilities and on the manner in which emotions are experienced, interpreted, and expressed by children at different ages (Cicchetti & Schneider-Rosen, 1984).

Carlson and Garber (1986) supported the notion of developmental impact on the clinical presentation of depression in children while recognizing that there may be some continuity between childhood and adult depression. They concluded that current criteria used to diagnose depression in children, such as DSM-III, probably needed to
be modified to reflect alterations in different developmental levels and suggested that current adult criteria, although perhaps offering worthwhile initial strategies with children, should only be used as preliminary guidelines in research.

Cicchetti and Schneider-Rosen (1984) further summarized the need for a developmental perspective in the study of depression in children. They suggested that there is no theoretical framework as yet that effectively incorporates the diverse perspectives regarding childhood depression, i.e., there is confusion over necessary and essential symptoms for diagnosis, the manifestation of depression during childhood, the psychological and psychobiological mechanisms that underlie its occurrence, and the effect of depressive disorder in childhood on future adaptation in adulthood. According to Cicchetti and Schneider-Rosen, it still remains unclear whether depression in children should be viewed as a transient sign of adjustment, a symptom secondary to another disorder, or as a depressive syndrome.

The developmental perspective of depression in childhood advocates expanding a "symptom-complex" diagnosis of depression by identifying additional age-specific manifestations of the syndrome and eliminating those that are age-inappropriate and by broadening the existing definitions of symptoms to encompass developmental
differences (Garber, 1984). For example, Garber suggested that empirical study utilizing the developmental perspective may reveal that certain symptoms of the adult depressive syndrome, such as guilt and hopelessness that require a higher level of cognitive functioning, are not appropriate for use with children and should be eliminated from the definition of the syndrome as applied to children.

The developmental model has implications for both the operational definitions used to describe symptoms of depression and the methods used for symptom assessment. The definition of a symptom or area of dysfunction was viewed by Garber (1984) as needing to be broad enough to include age-appropriate manifestations in light of the fact that general areas of dysfunction commonly associated with depression (i.e., affective, cognitive, vegetative, and behavioral) may be similar across the developmental span, however, age variation is likely in the specific manifestation of symptoms and behaviors. Garber (1984) cited the example of anhedonia which in adults is typically expressed as loss of interest in sex or usual hobbies; in children, anhedonia is more appropriately assessed by sustained periods of boredom or lack of interest in pleasurable activities. An additional example was offered in the more complex assessment of affect. Adults who are depressed typically describe sadness as the predominant affect. A direct verbalization of
sadness is less likely in children, particularly young ones. Children may instead appear to be sad and tearful or may use other words to describe their feelings, such as, "rotten", "lousy", or "bad". Garber (1984) emphasized that from a developmental perspective before clinicians and researchers accept these verbalizations as synonyms or related terms for "sad", normative developmental studies of children's expression of affect need to be conducted to determine if such expressions are age-appropriate behaviors or a symptom of distress. Trad (1987) agreed that a serious problem lies in reaching a consensus on a precise definition of depression in children pointing out that agreement among researchers is difficult when part of the population being defined lacks the necessary verbal skills to communicate subjective affective states. In those cases, symptoms regarding the child's experience of his or her inner reality must be inferred by the researcher by other means such as behavioral manifestations, hormonal measurements, or prolonged observation of interaction. Obviously, attempts to infer another individual's inner reality has its limitations and must be viewed with some caution.

In summary, the developmental approach to childhood depression purports that affective disorders in childhood have unique characteristics which are not satisfactorily encompassed and defined by the generally accepted adult
model of depression. The developmental model attempts to understand how age-appropriate limitations in cognitive, social, and emotional development affect the expression of specific depressive symptomatology. The investigation of etiological factors possibly underlying the development of affective disorders "considers the early precursors to later forms of affective disorders, while recognizing that limitations in the child's cognitive, emotional, or social abilities may prevent the overt manifestations of specific syndromes until later childhood" (Cicchetti & Schneider-Rosen, 1984, p. 1). Garber (1984) has proposed the following early steps in a developmental classification of childhood depression:

(1) determine whether the expression of depressive symptoms varies with development, (2) identify additional age-appropriate symptoms and areas of dysfunction to include in the diagnostic process, and (3) assess the influence of children's cognitive, affective, and social competencies and their physiological maturation on the experience and the expression of depressive symptoms. (p. 37)

This investigation addresses the first two steps in Garber's proposal through a comparative research design utilizing a clinical sample of depressed and nondepressed children and adolescents.
Developmental Studies on Depressive Symptoms in Children and Adolescents

There has only been limited theoretical work and even fewer empirical investigations to date from a developmental perspective of depression in childhood (Garber, 1984; Kashani et al., 1989; Ryan et al., 1987). Attempts to classify childhood depression using developmental approaches have largely been anecdotal or theoretical and differences in symptom manifestation by age remain speculative (Garber, 1984). Kovacs and Paulauskas (1984) agreed that despite the increasing speculations along developmental lines about the classification and expression of depression in children (e.g., Herzog & Rathbun, 1982; Malmquist, 1983) few propositions have actually been tested empirically and that even correlations between chronological age and the changing phenomenology of the depressive syndrome have only minimally been explored (Carlson & Cantwell, 1982). Weiss et al. (1992) stated that although there has been some empirical confirmation of age-related variations in depression

...support has been far from consistent, even within studies (see e.g., Garber, 1984; Ryan et al., 1987). These as well as other failures to find expected or convincing developmental differences (e.g., Kovacs & Paulauskas, 1984; Mitchell, McCauley, Burke, & Moss, 1988) have led certain authors (e.g., Ryan et al., 1987)
to suggest that developmental differences in the expression of depression may be minor, compared to the similarities. (p. 392).

Weiss and his associates (1992), however, cautioned that careful consideration needs to be taken of the methodologies utilized in previous studies before accepting such interpretations as valid. This section will present a review of developmental studies relevant to this research, i.e., age differences in behavioral symptoms or associated features of depression in children and adolescents to further illustrate the general lack of empirical knowledge to date regarding this specific aspect of depression. There has been a tendency to divide children into four broad categories of age—infancy, preschool, school age, and adolescence—in developmental research of childhood depression (Garber, 1984); since this research will focus on school age children and adolescents, only literature related to those age groups will be reviewed.

Some initial support for the notion of developmental variation in depressive symptomatology was evidenced in an early research effort by Ushakov and Girich (1972) investigating differences in depression in four groups of children and adolescents. In comparisons of 7 to 10-year-old children with children under the age of 7, symptomatology for the older group was found to include:
more persistent depressive symptoms, recognition and expression of feelings of sadness by the older children rather than inference of sadness from observed behavior in the younger children, less symptoms of anxiety than among the younger children who manifested increased anxiety at night, and suicidal ideation. Young adolescents, aged 11 to 13, were found to have more fully expressed and pronounced depressive symptoms, i.e., a greater awareness of their distress and its causes; a further decrease in anxiety and behavioral disturbances; and rudimentary depressive delusions. Older adolescents, aged 14 to 17, manifested full-blown melancholy, motor and intellectual inhibition, reduced tearfulness (compared to the younger children); increased suicidal thoughts and gestures; and more marked vegetative-neurotic symptoms. It was concluded that throughout the school-age years the characteristics of depressive disorder apparent at younger ages appear to become more concrete and recognizable as symptoms typically associated with depression with increasing age.

Another early study by McConville, Boag, & Purohit (1973) examined the differential manifestation of depressive symptoms across ages 6 to 13. The records of 75 inpatient children described as being depressed were reviewed by McConville and his colleagues. Fifteen depressive symptoms were rated on a three-point scale on the basis of clinical
frequency leading to the differentiation of three subtypes of symptoms that tended to correlate with specific age groups of children experiencing depression. Symptoms in the 6 to 8 year-old group were described as primarily feelings of sadness, helplessness, loneliness, loss, and an unspecified feeling of being bad; this symptom cluster was classified as the "affectual type". The group of children aged 8 to 10 years was characterized by symptoms of the "self-esteem type", i.e., feelings of inability to help others, of being disliked, of hopelessness, and of negative self-esteem. The "guilt type" of depression included symptoms of being wicked or hated, the belief that one was being justly punished, and suicidal ideation (although of less intensity than those found in adult depressives) and was typical of children aged 10 to 13. Garber (1984), following a review of the previous two studies, commented that the results provide support for the developmental view of depression in that "there appears to be a trend toward decreasing diffuseness of the symptom picture and increasing similarity to the adult syndrome with the growing complexity and differentiation of cognitive, linguistic, affective, and social capacities" (p.41).

Philips (1979) found in his clinical work with children and families that depression in children was frequently accompanied by depressive disorders in one or more of their
parents (also found by Poznanski and Zrull, 1970) and postulated that children may mirror the depression of their parents but do so in developmentally different ways. Philips offered the following clinical cases in which the child and a caretaker were experiencing similar affect but differing symptom manifestations to illustrate developmentally different paradigms of depression:

At a pediatric well-baby clinic, a consultation was requested for a 17-year-old young mother and her 9-month-old infant, who had failed to thrive. In a brief history, the mother, self-deprecatory, with frequent crying spells and suicidal ideas, indicated she had little time for herself or the infant. The infant was unresponsive and quite difficult to arouse. His face had a withdrawn and distant look, he was undernourished, and his growth rate was retarded.

Bill, a 4-year-old, was abandoned by his father at birth. He was one of three children. His 32-year-old mother frequently spanked him (sometimes a bit too hard) to control difficult behavior. The mother's life pattern was punctuated by frequent depressive episodes and one hospitalization soon after Bill's birth. Bill was a problem in nursery school, alternating between aggressive outbursts and hurting other children smaller
and younger and passively remaining by himself, refusing to enter into activities.

George, an 8-year-old, was referred because of symptoms of encopresis. On entering the office, the psychiatrist's pinched nose evidenced the symptoms. George remarked, "Doctor, I have troubles. I stink inside and out." His mother had had repeated hospitalizations for psychotic depression ever since his birth and his father was a chronic alcoholic. George was a highly intelligent youngster who was failing in school because of daydreaming. He remained by himself most of the school day. His teacher remarked that she had never known a sadder youngster. When barely scolded he broke into tears.

June, a 7-year-old, refused to go to school because of overwhelming fear. Her mother felt incapable of helping her attend. When June was 7 months of age, the mother had had a severe depression that necessitated hospitalization for a three-month period. Her father, with whom she felt unusually close, was an immature underachiever who had frequent job changes and dreams of great success that was soon to appear on the horizon.

Jean, a 10-year-old, was devastated by the sudden death of her father when she was nine. After two days, she rarely mentioned him again. Nevertheless, she wore
his oversized parka wherever she went. When asked about him, she responded with little emotion. Her mother, an ambitious, successful attorney, denied her grief and ambivalent feelings toward her departed husband. She lamented her new role in life. She was highly critical of her daughter, demanding high scholastic performance, a full social life, and after-school work. The daughter responded with compliant behavior but alternated between obesity and anorexia, elation and depression. Soon after the daughter entered treatment and began to rebel against her mother's unrealistic demands, the mother sought psychiatric help for herself because of behavior that was progressively deteriorating due to severe depression. (pp. 75-76)

Philips (1979) suggested that during middle childhood (6-8 years of age) children may manifest depression by school refusal, a variety of affective symptoms (which were unspecified by the author), aggression, learning problems, hyperactivity, or physical and psychological complaints. It should be noted that Philips (1979) conclusions are drawn from his personal clinical experience rather than from empirical investigations.

Others (e.g., Garber, 1984; Carlson & Kashani, 1988) have postulated that similarly aged children exhibited the following symptoms associated with depression: a tendency
to sustain sadness for longer periods that younger children (although manifestation continued to be an overt, rather than verbal, expression), helplessness, loneliness, loss, an unspecified feeling of being bad, daydreaming, acting out, learning problems, and physical complaints. Children in late childhood (8-11 years of age) were believed by some researchers to begin to manifest symptoms more like adults; symptoms included negative self-esteem and self-depreciation, hopelessness, guilt, blaming others, apathy, irritability, phobias, aggression, lethargy, and poor school performance. Children at this age also expressed a morbid outlook on life and/or expressed thoughts of death or suicide (Carlson & Kashani, 1988; Garber, 1984; Philips, 1979). Poznanski (1982), likewise, viewed the clinical phenomenology of depression in 6-12 year-old children as similar to that of adults and described frequent symptoms in that population of dysphoria, low self-esteem, reduced capacity for fun, massive guilt, impaired schoolwork, morbid and suicidal ideas, social withdrawal, excessive fatigue and psychomotor retardation.

According to Garber's (1984) review of studies of adolescent depression, symptoms in adolescents were similar to adult depression and included dysphoria, impaired concentration, fatigue, feelings of worthlessness, suicidal ideation, as well as loss of interest, anorexia and
overeating, social withdrawal, and hypochondriasis (see e.g., Garber, 1984; Carlson & Kahani, 1988). Tearfulness tended to be less frequent than in the younger age groups as was overactivity. Depression in adolescents was frequently seen to be difficult to diagnose because of the emotional lability normally associated with the adolescent phase of development and the serious behavior disorders frequently found with this population including delinquency, truancy, chemical abuse, and sexual promiscuity that often accompanied and overshadowed the depressive disorder (Garber, 1984).

Carlson and Kashani (1988) offered speculations of the various manifestations of depression in children (ages 6-8 and ages 9-12) and adolescents (ages 13-18) based on findings from previous studies (Bemporad & Wilson, 1978; Herzog & Rathbun, 1982; Weinberg, Rutman, Sullivan, Perrick, & Dietz, 1973) in comparison to adult symptom criteria, including: dysphoric mood; loss of interest or pleasure; appetite or weight change; insomnia or hypersonnia; psychomotor agitation; psychomotor retardation; loss of energy; feelings of worthlessness; diminished concentration; recurrent thoughts of death/suicide; anxiety; and somatic complaints. All three age groups were suggested to manifest dysphoric mood differently than adults with 6-8 year-old children expressing prolonged unhappiness, somberness and
irritability; 9-12 year-olds, sad expression, apathy and irritability, and 13-18 year-olds presenting with sad expression, apathy, irritability and complaints of depression. Both 9-12 year-olds and 13-18 year-olds may have had adult presentation of loss of interest/pleasure, while expression in 6-8 year-old children more often may have been expressed in decreased socialization. All age groups were surmised to be similar to adult presentation in appetite/weight change and only the 6-8 year-old children may have differed in expression of insomnia/hypersomnia with a variety of sleep problems. Psychomotor agitation was posited to be expressed as irritability and tantrums in 6-8 year-olds and as aggressive behavior in both age groups of older children. Carlson and Kashani suggested that adolescents express psychomotor and loss of energy similarly to adults while the two younger age groups may present more with lethargy. Diminished concentration for all age groups was likely to be seen in poor school performance, while feelings of worthlessness may be expressed in low self-esteem for 6-8 year-olds, low self-esteem and guilt for 9-12 year-olds and guilt for adolescents. Recurrent thoughts of death and suicide in adolescents and 9-12 year-olds were probably similar to that in adults, in 6-8 year-old children it may have been expressed more in accident proneness and a morbid outlook. Separation anxiety and phobias may have
been present in 6-8 and 9-12 year-old children, while manifestation of anxiety in depressed adolescents was more likely to imitate adults; somatic complaints associated with depression may be present in ages 3-adulthood. Carlson and Kashani's (1988) speculative symptom manifestation of depression for various age groups reflected the hypothesis supported by others as previously mentioned (e.g., Kovacs & Paulauskas, 1984) that age differences in depressive symptom manifestation occur more in younger children and that similarities between adult and childhood depression increase as children move developmentally closer to adulthood. Again, it is pointed out that Carlson's and Kashani's (1988) preceding descriptions were speculative based on a review of previous research studies rather than conclusions based on any empirical analysis of data from those investigations.

To empirically investigate differences in age-related depressive symptoms, Carlson and Kashani (1988) conducted an analysis of data from three previous studies on depressive symptoms for four clinical populations: preschool (N=9) (Kashani & Carlson, 1987); children (N=95) and adolescents (N=92) (Ryan et al., 1987); and adults (N=100) (Baker et al., 1971, cited in Carlson & Kashani, 1988). Subjects in all three studies had been systemically interviewed and diagnosed according to similar adult-based criteria, (i.e., Feighner et al., RDC, or DSM-III) for depression; however,
the children and adolescents were assessed on severity of symptom whereas the adults and preschoolers were assessed on the basis of presence or absence of symptom which limited the comparability between studies. Other limitations were noted and included differences in assessment procedures by different investigators, the 16 year time course between studies, and differences in severity of disorders between the populations compared (i.e., the adults were all psychiatric inpatients and the preschoolers were all referred to a specialized unit for serious behavioral or developmental problems). It is interesting to note that in Kashani and Carlson's (1987) 5-year study of 1,000 preschoolers, only 9 were diagnosed with depression utilizing unmodified DSM-III criteria. The low prevalence may be explained by hypotheses that depression in very young children was relatively rare (see e.g., Rie, 1966) or by the supposition that adult criteria were inadequate to diagnose children, and therefore, some children were missed as suggested by others (see e.g., Kovacs et al., 1984a). Results of Carlson and Kashani's (1988) comparisons on the presence of depressive signs and symptoms based on data from these three studies indicated that depressed mood, diminished concentration, suicidal ideation, and insomnia occurred with similar frequency across developmental ages. Anhedonia, diurnal variation (worse in mornings), psychomotor
retardation, delusions, and hopelessness appeared to increase with age, while depressed appearance, low self-esteem, and somatic complaints decreased with age. Fatigue, agitation, and poor appetite occurred frequently in preschoolers and adults, and less frequently in children and adolescents, perhaps suggesting that some symptoms may have had different meanings at different stages of development. The authors concluded that while age and development appear to modify some manifestations of depression and alter the frequency of symptoms, making some more or less prominent, the basic phenomenology of serious depressive disorders appeared to remain basically unchanged for this diverse sampling of age groups.

Other investigations have failed to find significant developmental differences in symptom manifestation. Although Kovacs and Paulauskas (1984) hypothesized that hopelessness and concerns about the future were not likely to be expressions of depression in young children given their cognitive limitations, they failed to find expected age differences in an ongoing, longitudinal nosologic study of age-matched depressed and nondepressed psychiatric referred children. Results of the data collected on the depressed children indicated that there was not an apparent relationship between cognitive stage and the duration or type of depression in the child. It was also noted that
vegetative symptoms of depression did not follow a clear developmental pattern. Kovacs and Paulauskas (1984) concluded that the relationship between development, maturation, and expression of depression among school-aged children was much more complicated than previously thought and that the study of developmental psychopathology may require new conceptual strategies. They suggested that the current developmental expectations of age-related differences in the expression of depression may be more in line with younger than with older children. Similarly, Mitchell et. al. (1988) assessed depressive symptoms in 45 children 7-12 years of age and 50 adolescents aged 13-17 years who were diagnosed with major depressive disorder. Their findings indicated no significant difference in symptom presentation between the two groups. The younger children (7-12 years) were also found to have similar symptom presentation of depression as adults (although this must be interpreted with caution since the children had to meet adult-based criteria in the first place to be included in the study and there was no empirical comparison with a depressed adult group). It may be noticeable that nearly one-half of the total subjects had a coexisting separation anxiety disorder and that a sizable minority of the preadolescent males also had a diagnosis of conduct disorder which may have confounded the results.
Although Ryan and Puig-Antich (1986) cited findings of developmental differences in symptom manifestation for outpatient prepubertal children and adolescents clinically diagnosed with major depressive disorder, (i.e., adolescents presented more frequently with anorexia and weight loss, hopelessness, and hypersomnia, while children showed significantly more frequent depressive symptoms, headaches, stomach aches, and psychomotor agitation and among associated features of depression, separation anxiety was found to be more frequent among children and phobias and avoidance were more frequent among adolescents) the authors maintained that the differences were very few and that.

"Although some age-specific variations do exist, the symptom criteria are not different [and]...[a]lthough the frequency of some symptoms does vary with age, and can be convincingly related to developmental patterns, their nature does not" (p. 425-426).

Results from other studies are more supportive of the developmental perspective that there are significant changes in children's expression of depressive symptomatology with age and that these changes are influenced by developmental changes in cognitive, linguistic, and socioemotional capacities. Ryan et al. (1987), who studied clinically referred children and adolescents, recommended that somatic complaints, social withdrawal, and hopelessness, which they
purported were commonly recognized depressive symptoms but missing from DSM-III criteria, be included in diagnostic criteria for depression in children and adolescents.

Garber's (1984) study of 137 outpatient girls aged 7 to 13, who were rated for depression utilizing the Children's Depression Inventory (CDI) (Kovacs, 1980/81; 1992), the Parent Form of the Children's Depression Inventory (P-CDI) (Garber, 1983), and the Children's Depression Rating Scale (CDRS) (Poznanski, Cook, & Carroll, 1979), yielded findings indicating that certain symptoms tended to increase as a function of age in her population of depressed girls. Those symptoms included: appetite problems, hypoactivity, pervasive loss of interest, capacity to have fun, guilt, hopelessness, irritability, fatigue, problems at school, difficulty concentrating, depressed feelings, and low self-esteem. Symptoms that tended to decrease significantly with age among the depressed children only were morbid ideation and weeping. It was postulated that childhood depression appears to consist of three meaningful factors—affective, activity, and sleep/somatic components—which tend to increase with age. Garber cautioned, however, that these conclusions were tentative and results needed to be cross-validated. Furthermore, these findings did not reflect the developmental course of depressive symptomatology as the data weighed only cross-sectional age differences in
different female children rather than longitudinal differences. In addition, the findings could not be generalized to male children as only females were included in the research population.

Weiss and Weisz (1988) did factor analyses on Children's Depression Inventory (CDI) responses for 110 clinic-referred children (8 to 11-year-olds) and 139 adolescents (12 to 16-year-olds) and found developmental differences in the resulting 3-factor solutions between the 2 groups. Another study by Weiss et al. (1991) evaluated developmental differences in a much larger sample of inpatient and outpatient children aged 8 to 12 years (n=515) and adolescents aged 13 to 16 years (n=515) in CDI factor structures for the two groups. Modest differences were found in the 5 adolescent factors and the 5 child factors; a similarity was found in that both factor structures shared an identical school factor (perception of having problems in school). The most notable developmental differences between the children and adolescents was reported on the general depression factor, with more externalizing behavior items for children and more vegetative items for adolescents (e.g., tired all the time).

A more recent and related study by Weiss et al. (1992) looked at developmental differences in the same population using a different approach for analysis of frequency of
symptoms as reported on the CDI. CDI items were placed in one of nine categories of symptoms including: affect, anhedonia, concerns about the future, externalizing/negativistic/antisocial behavior, guilt, low self-esteem, social withdrawal/isolation, somatic complaints, and vegetative problems. Results indicated little variation across developmental levels in terms of the frequency of specific symptoms with a small, but significant, difference on only 5 of the 27 CDI items. Affective symptoms and concerns about the future (e.g., hopelessness) appeared to be more related to depression for adolescents, while externalizing behaviors and guilt were more associated with self-reported depression for the children. The authors reported that 16 of the 27 CDI items appeared to be "age-invariant" with the categories of anhedonia, social isolation, somatic, vegetative, and self-esteem relatively constant across developmental levels. It was suggested that "there are a number of parallels as well as differences" (p. 395) between depression in children and adolescents. Results supported previous findings of specific differences by Weiss et al. (1991) for higher externalizing behaviors in children than adolescents, but did not find similar results for higher vegetative symptoms in adolescents than in children. Additionally, although support was found for age-related features for depression in children and adolescents
as predicted by DSM-III-R for somatic complaints and negative or antisocial behavior, a slightly higher level of somatic complaints for children was found to be unrelated to depression and externalizing behaviors were more frequent in children than for adolescents, contrary to DSM-III-R's prediction. Results replicated some findings in other investigations, for example, the higher levels of anxiety in younger compared to older children (Worchel, Nolan, & Willson, 1987) and higher levels of irritability reported for adolescents compared to children by Kashani et. al. (1989). Results were inconsistent, however, with Ryan et al. (1987), finding no age differences in anxiety or irritability and with Worchel et. al. (1987) reporting no differences in irritability in their population.

The existence of associated features for depression in children and adolescents as described by DSM-III and supported in some previous investigations (see e.g., Carlson & Cantwell, 1980; Puig-Antich; 1982) was also borne out in a study by Geller et. al. (1985) with 59 5 to 16-year-old children diagnosed with major depressive disorder by RDC and DSM-III criteria, but again expected age differences were not found as predicted by DSM-III. Geller et al. (1985) did find that separation anxiety occcurred significantly more frequently for prepubertal children (5-12 years) than for adolescents, but antisocial behavior was not found to be
significantly more common for either group. Kashani et al. (1989) studied depressive symptoms in three age groups (8, 12, and 17 years of age) in a nonclinical public school population of 210 children and adolescents and reported support for previous findings (Rutter, 1986) of an increase in depression with age. It is important to note, however, that the authors based that conclusion on a very small subsample of subjects (n=6) who were able to meet all DSM-III criteria for depression (one 8-year-old, one 12-year-old, and four 17-year-olds). Differences in symptom frequencies according to age were assessed according to ratings on three instruments: the Child Assessment Schedule, a semi-structured interview using DSM-III criteria; the Birleson Depression Self-Rating Scale for Children (Birleson, 1981); and the Hopelessness Scale for Children (Kazdin, Rodgers, & Colbus, 1986). Depression-related items on the Child Assessment Schedule that became more frequent with increasing age included: being more tired, not caring whether (s)he hurt self; agitation when sad; and frequent irritability. Only one symptom, crying, decreased with age. Results of a regression analysis indicated that depressive symptoms for the 8-year-old children were associated with withdrawal and pessimism; for the 12-year-old group, pessimism about the future and physical symptoms (e.g., poor appetite, sleep problems, and
stomach aches); and horrible dreams and suicidal ideation in the 17-year-old group.

Other Symptom Studies In Childhood Depression

Prior to the advent of the developmental perspective as a theory in the study of depression in children, various investigators hypothesized a number of symptoms or associated features related to childhood depression, among the first being proponents of the concepts of masked depression and depressive equivalents. Although masked depression and depressive equivalents did not prove to be viable as a theoretical concept in furthering empirical understanding of childhood depression (Cytryn et. al., 1980, Finch & Saylor, 1986; Trad, 1987), a benefit of the concept has been its acknowledgment of behavioral symptoms in children and age differences in depressive expression. Since one of the purposes of this investigation is to identify a variety of behavioral symptoms common to depressed children and adolescents in an effort to add to the knowledge of the parameters of childhood depression, previous literature (other than those already reviewed in the earlier section on historical assessment of depression in children) citing behavioral symptoms will be reviewed. As in the preceding section on developmental differences, only literature related to school-aged children and adolescents will be reported.
Several authors (Berlin, 1979; Digdon & Gotlib, 1986; Nolen-Hoeksema, Girgus, & Seligman, 1991; Reinherz et al., 1990) have suggested that antisocial behavior and aggressive acting-out is common in depressed children and may actually represent "masked" depression (Blumberg, 1981; Cytryn & McKnew, 1972; Gizynski & Shapiro, 1990) in children with behavioral disorders. Neither Berlin (1979), Blumberg (1981), nor Gizynski and Shapiro (1990) present empirical data to support their arguments. Jensen et al. (1988), comparing 8 to 18-year-old males diagnosed with major depressive disorder or attention deficit disorder with normal controls, found a higher rate of externalizing behavioral symptoms in depressed boys than in either of the other two groups. Boys diagnosed with major depressive disorder were not found to have features of attention deficit disorder but were suggested as possibly having an oppositional disorder. A serious limitation of the study was the very small sample size (N= 35). Geller et al. (1985), in their study of associated features in 59 children aged 5-16, found that 20% of the children who met diagnostic criteria for depression also manifested high rates of antisocial behavior. Edelbrock and Achenbach (1980) investigated clinically referred girls and found that 7.6% of the sample were children who as a group were depressed, withdrawn, and aggressive. In a sample of 9-12-year-old
children (N=100), Kashani et. al. (1982) reported that children diagnosed with major depression and conduct disorder had an absence of somatic complaints, and conversely, depressed children with somatic complaints were not co-diagnosed with conduct disorder. The authors hypothesized that some depressed children may manifest somatic complaints while others manifest aggression toward others as distinct coping styles in response to their depression.

A variety of other symptoms have been reported in depressed children and have been remarkably similar. Poznanski and Zrull (1970) observed a number of symptoms in children seen at a psychiatric outpatient clinic including: sad, unhappy, or depressed affect; excessive self-criticism; feelings of inadequacy; sleep difficulties; withdrawal; and excessive concerns about death. Connell (1972), in a study of childhood depression in a pediatric outpatient clinic, identified the most frequent behaviors in that population as social withdrawal, feelings of rejection, irritability, behavioral change, and a negative self-concept. Children were included in the study as "depressed" if their parents described them as being persistently unhappy or depressed rather than by any empirically derived criteria. Cytryn and McKnew (1972) conducted studies on childhood depression at the NIMH and felt that they could identify a group of
latency aged children with a clearly identifiable depressive syndrome by the following symptoms: persistant sad affect, social withdrawl, hopelessness, helplessness, psychomotor retardation, anxiety, school and social failures, sleep and feeding difficulties, and suicidal ideas and threats. Soon after, Weinberg et. al. (1973) proposed criteria for the diagnosis of childhood depression based on their work with depressed children at a large educational diagnostic center for children. The Weinberg criteria required symptoms of (1) dysphoric mood; (2) self-deprecatory ideation; and at least 2 of the following: (1) aggressive behavior; (2) sleep disturbance; (3) change in school performance; (4) diminished socialization; (5) change in attitude toward school; (6) somatic complaints; (7) loss of usual energy; (8) unusual change in appetite or weight. A criticism of the Weinberg criteria was that there was no indication of whether measures of the child's behavior were to be based on parental report or on direct clinical observation of the child (Poznanski, 1979).

More recent studies have continued to identify similar types of symptoms. Lesse (1981) purported from his clinical observations, that

...acting-out behavior that is quite direct is the most common type of depressive expression among children, and to a gradually decreasing extent, among
adolescents. Defiance, truancy, restlessness, boredom, antisocial acts, school phobias, underachievement in school and so forth, are the common masking symptoms of depression in children. (p. 357)

Lesse goes on to suggest that older children may exhibit tantrums and running away, while hypochondriasis and psychosomatic disorders are more common masks in adolescents along with substance abuse and sexual acting-out.

Pozananski (1982) described the clinical phenomenology of depression in 6-12-year-old children as similar to that of adults with frequent symptoms of dysphoria, low self-esteem, reduced capacity for fun, massive guilt, impaired school work, morbid or suicidal ideas, social withdrawal, excessive fatigue, and psychomotor retardation. Kaslow, Rehm, and Siegel (1984) investigated social-cognitive and cognitive correlates of depression in children and found symptoms of low self-esteem, depressive attributions and deficits in self control, such as negative self-evaluations, low performance expectations, and preference for punishment over reward. On comparisons of 86 depressed, 43 fearful, and 43 normal 8 to 12-year-old children on indices of social competence (Kennedy, Spence, & Hensley; 1989), depressed children reported lower levels of assertiveness, increased submissiveness, and a lack of adequate social skills. Depressed children were also found to be more likely to be
rejected or isolated by their peers than either the fearful or normal children. McCauley, Carlson, and Calderon (1991) explored whether somatic complaints were a significant feature of depression independent of anxiety in a sample of depressed psychiatric patients (n=100; M age=12.4 years) when compared to nondepressed psychiatric controls (n=38; M age=11.7 years). Of the subjects who met criteria for depression, 70% had significant somatic complaints compared to the presence of somatic complaints in 34% of the controls. Frequency of somatic complaints was found to increase with the severity of depression regardless of coexisting anxiety. Reinherz and associates (1990) examined correlates of depressive symptoms in 13 to 16 year-olds (N=378) and found children who scored high (12 was used as the cutoff score) on the CDI exhibited sad affect, anxiety, withdrawl, and a variety of antisocial behaviors. An earlier study by Strausse et. al. (1984) also reported a correlation between high CDI scores and anxiety as well as low self-esteem, problems with attention and concentration, and difficulties with social relationships.

**Studies On Depressed and Conduct Disordered Children and Adolescents**

An assumption of this research was that some depressed children may be misdiagnosed as conduct-disordered due to the apparent overlap of antisocial and aggressive behavioral
manifestations of the two disorders; therefore, it would appear necessary and important to further discriminate between children and adolescents with depressive and conduct disorders. The relationship between depression and conduct disorder in children and adolescents has only begun to receive attention in the last decade with empirical investigation initially focused on prevalence studies of the coexistence of the two disorders. However, there has been some more recent investigations to examine the differences in symptom manifestation between the disorders, although these are scarce and tend to be single variable studies. This section will review the current findings from these empirical investigations.

Prevalence studies of affective and conduct disorders in children and adolescents have indicated that it may not be uncommon for the two disorders to coexist. The association of depression with conduct disorder was cited as early as the 1970's by Rutter, Tizard, and Whitmore (1970) and by Graham (1979). McDermott's (1980) research with 2500 Canadian children supported previous findings of an overlap of emotional and conduct disorders. Puig-Antich (1982) found that 37% of boys diagnosed with major depression also met DSM-III criteria for conduct disorder. Similarly, Carlson and Cantwell (1980) reported a prevalence rate of 32% for the coexistence of conduct or attention deficit
disorder in depressed children. Likewise, Steward, deBlois, Meardon, & Cummings (1980) found a high prevalence of depression among conduct-disordered children. However, Kovacs and her associates (1984a), in their longitudinal studies of 8 to 13 year-old inpatient children, found the coexistence of disturbances of conduct in depressed children to be lower than reported by other investigators, reporting a 7% prevalence rate of conduct disorder in children diagnosed with major depression and an 11% co-occurrence of conduct disorder with a diagnosis of dysthymia. Ryan and Puig-Antich (1986) reported that the existence of a secondary conduct disorder was equally prevalent in their study of depressed prepubertal children and depressed adolescents. Craighead (1991), in a review of cognitive research on depression in adolescents, concluded that there is an indication of the co-occurrence of depression and conduct disorder among adolescents and posits that this co-occurrence must be considered in the study of adolescent depression. A major problem in research on the comorbidity of depression and conduct disorder, however, was cited by Cole and Carpentieri (1990) who warned that the apparent overlap of the two disorders may be due, at least in part, to the "shared method variance" in assessing the two disorders, i.e., the use of identical or similar instruments by investigators to assess symptoms for both disorders.
Obviously, the paucity of the literature to date makes it impossible to draw any definitive conclusions but findings appear sufficient to justify continued investigation.

Initial investigations into shared symptomatology between depressive and conduct disorders are scarce and information is preliminary with little comparability between studies possible at this point due to the differences in populations, methodology and variables for existing studies. The following are some of the most recent studies.

Koenig (1988) examined differences in self-image between normal, depressed, and conduct-disordered adolescents (12-19 years). Findings indicated that depressed adolescents evaluate themselves poorly in multiple areas as assessed by the Offer Self-Image Questionnaire while conduct disordered youth indicated almost no specific deficits in their self-image. The overlap of childhood depression and conduct disorder as a function of peer social status was examined by Cole and Carpentieri (1990) in a sample of 1,464 nonreferred fourth graders; findings indicated that subjects who scored higher than average on both depression and conduct disorder tended to be rejected by their peers while conduct disordered children tended to be regarded as controversial by peer nomination. A small but significant relationship between depressive and conduct problems for 76 emotionally disturbed and behaviorally disordered children and
adolescents (11 to 18 years) was reported by Nieminen and Matson (1989) utilizing self-report and teacher ratings on several measures of depression and behavior problems. Harrington et al. (1991), in a longitudinal study of depressed children and adolescents \( n=63 \) followed into adulthood and compared to psychiatric controls \( n=68 \), found no difference in the symptom presentation of depression between depressed subjects with a coexisting conduct disorder and depressed subjects without conduct disorder although depression and conduct disorder seemed to have a worse short-term outcome. Results also indicated that depression with conduct disorder may be related to an increased risk of adult criminality but a lower risk for adult depression. They concluded that the outcomes for depressed and conduct-disordered children and adolescents appeared similar to nondepressed children and adolescents with conduct disorder.

Other studies have indicated similarities of symptoms making the two disorders difficult to distinguish from one another. For example, Marriage et al., (1986) found children and adolescents diagnosed with conduct disorder and a depressive disorder indistinguishable from subjects diagnosed with major depression on the basis of psychiatric ratings of depressive symptoms. Both groups were characterized by high severity of depressive symptoms with
symptom severity higher in conduct disorder and depression than in dysthymia alone. Conduct-disordered and depressed subjects were characterized by impulsivity, depression, lack of fatigue, and suicidal ideation, and it was suggested that this group may be at more risk for suicidal behavior. Similarly, Nelson, Politano, Finch, Wendell, and Mayhall (1987) studied 535 inpatient children aged 6-18 years and found the most common diagnoses to be conduct disorder and affective disorders. When those two groups were compared on self-ratings on the CDI, there was no significant difference on total CDI scores, i.e., conduct-disordered children could not be distinguished from depressed children. In a more recent study (Politano, Edinger, & Nelson, 1989), however, comparison of CDI response patterns in 103 affective and 125 conduct-disordered psychiatric inpatients aged 6-17 years yielded differences in CDI symptom clusters between the two groups. Depressed children showed symptom clusters on sadness, isolation, negative self-image and self-loathing, while clusters in conduct-disordered children centered around a defeated attitude, being upset, not having fun anymore, not wanting to be around other people and difficulty with academic performance.

Some studies have suggested possible subsets of depression and antisocial behavior. For example, a study by Edelbrock and Achenbach (1980) found a syndrome of
depressed, withdrawn and aggressive behavior in a group of 6 to 11-year-old boys, but not in 6 to 11-year-old girls or in older boys; older girls were found to manifest a different syndrome of depressed, withdrawn, and delinquent behavior. Edelbrock and Achenbach (1980) postulated that their results indicated variations in the nature of depressive symptoms with combinations of symptoms reflective of age and sex differences. Another study (Kashani et al., 1982) with a sample of inpatient children (aged 9-12 years) found children who were depressed and manifested somatic complaints but who did not have a secondary diagnosis of conduct disorder while other children diagnosed with both depression and conduct disorder had an absence of somatic complaints. To date, there are no known studies comparing depressed and conduct-disordered children or adolescents on a large number of behavioral symptoms related to depression.

**Summary of Previous Literature**

It would appear that some developmental differences do exist in the expression of depressive symptomatology, although the differences may not be as simple as previously thought (Weiss et al., 1992). Further, inconsistencies in empirical findings appear "to be the rule rather than the exception" (Weiss et al., 1992, p.395) and may be due to a number of contributing factors noted by Weiss and Garber (1991, cited in Weiss et al., 1992) such as variations among
studies in definition of developmental level, age-ranges of populations, assessment methods, procedures for sample selection, and low statistical power. Trad (1987) summarizes by stating that despite increasing recognition that age affects the development and expression of depression in childhood, it is still unclear, even at the grossest level, what form the effects of age assume. . .the complicated nature of the impact of age on depression and whether this results in different disorders, with different clinical pictures, different clinical courses at different points in development, and different prognoses [remains unclear](p.33). . .findings . . .imply that childhood depression is a very heterogeneous disorder. (p.35)

It has also been suggested that a greater emphasis needs to be placed on the behavioral dimensions of childhood phenomenology assuming that children lack necessary affective skills to adequately express their subjective experiences (Politano, Edinger, & Nelson, 1989). The current paucity of rigorous empirical investigations of developmental differences in behavioral symptomatology reflect the ongoing lack of any definitive conclusions about the nature of depression during childhood. This investigation was designed with the intent of providing some
clarification as to the differences in behavioral manifestations of depressed children and adolescents, eventually leading to a clearer definition of assessment in depression with the hope that additional depressed children and adolescents may be recognized and appropriately treated.
CHAPTER 3

METHODOLOGY

Sample Population

The research population utilized in this study included 630 children and adolescents admitted to one of four psychiatric inpatient facilities for children during a seven year period spanning 1983 to 1990. All children admitted to each of the four psychiatric hospitals were included in the original collection of data. Three of the four facilities were public state institutions located in Ohio, Virginia, and South Carolina which tended to serve low to lower-middle socioeconomic populations; the fourth was a private psychiatric hospital in Ohio serving a primarily middle to upper-middle socioeconomic population. No children or adolescents with a prior diagnosis of mental retardation were admitted to any of the four inpatient facilities and therefore were not represented in this population.

Data Gathering Procedures

For the purposes of this study, data was drawn from an archival data bank collected and pooled by previous researchers. Original data collection included demographic information, results from a number of psychological tests, psychiatric diagnosis based on DSM-III criteria, and
admitting behavior problems identified according to the Problem-Oriented Record (POR) (Weed, 1969) method of medical record format. Consent forms were obtained from the subject and parent or guardian for each subject as part of the hospital admissions process. Data retrieved from the archival data bank for this study included demographic information (age, sex, and race); primary and secondary psychiatric diagnosis based on DSM-III criteria; total score on the Children's Depression Inventory (CDI); and POR behaviors (as previously defined in Chapter 1) for each subject in the research population.

Each subject in the research population was administered the CDI individually within 3 days of admission to the hospital. For subjects with reading difficulties, the CDI items were read aloud to the subject. The CDI was administered by graduate level students in clinical psychology programs under the supervision of licensed clinical psychologists to subjects hospitalized in Ohio and South Carolina; a licensed clinical psychologist administered the CDI to subjects in Virginia.

Psychiatric diagnosis using DSM-III criteria for each subject was reached through a consensus between a child psychiatrist and a licensed child psychologist who were members of the subject's multidisciplinary treatment team.
Since neither were aware of this investigation, diagnosis was not influenced by the demands of the study.

POR format was used to develop a list of problem behaviors specific to the subject at the time of hospital admission and was a consensus of the subject's multidisciplinary treatment team which was composed of the subject's inpatient classroom teacher, the hospital unit director, a psychiatric nurse, a clinical social worker, a licensed child psychologist, and a child psychiatrist. Information in developing the problem list was obtained from the subject's preadmission history of parental and school complaints as well as behaviors directly observed by various hospital staff members. In all cases, the problem list was completed within 2 weeks of hospital admittance and conformed to the Joint Commission on the Accreditation of Hospitals (JCAH) guidelines (JCAH, 1985) to target problem behaviors for treatment plan development. Problem behaviors for all subjects were later pooled, developed into a general problem list, and coded for use in empirical investigations by the original researchers. The coded general problem list was used in this investigation to identify differences in behaviors between groups of subjects by matching coded behaviors from the general problem list with behaviors identified in the research literature as symptoms or associated features in depressed children and adolescents.
Forty behaviors were isolated and recoded by this investigator as POR behaviors.

**Instrumentation**

Two methods of assessment were used to determine the presence or absence of depression in the research samples of children and adolescents for this study: psychiatric diagnosis for depressive disorders using *DSM-III* criteria (APA, 1980) and total score on the Children's Depression Inventory (CDI) (Kovacs, 1980/81; 1992). Due to the lack of definitive empirical criteria that has been validated for assessing childhood depression and because a significant portion of the literature appears to support the applicability of adult criteria to diagnose depression in a number of children and adolescents, it would appear that the use of *DSM-III* criteria in initial investigation efforts is warranted (Trad, 1987), acknowledging that some depressed children will most likely be missed. In light of this problem, some researchers, (e.g., Finch & Saylor, 1986) have advocated the use of multiple criteria in assessing childhood depression, such as clinical interviews, self-report instruments, and instruments completed by others in a position to observe the child's behavior, such as parents and teachers. Some other investigators have suggested that self-report by children is probably more accurate in assessing the child's subjective affect than other sources.
of information such as parents and teachers (see e.g., Cytryn et al., 1980; Weller, Weller, Fristad, & Bowes, 1991). Self-report utilizing the CDI was chosen as the additional means of assessing depression for this study on the assumption that adults may not recognize children's expressions of subjective emotional states and may thereby misinterpret the child's behavior. Therefore, children may be a more accurate source of information regarding the presence or absence of their own depressive status. In addition, use of the CDI broadened the sources of information about a subject given this study's use of DSM-III diagnosis which is based on the observations of others.

The Diagnostic and Statistical Manual of Mental Disorders, Third Edition. The Diagnostic and Statistical Manual of Mental Disorders, Third Edition (DSM-III), published by the American Psychiatric Association (1980), has probably been the most utilized source for diagnosing psychiatric disorders for adults and children in both clinical practice and research until the advent of its revised edition (DSM-III-R) in 1987. DSM-III employs the same diagnostic criteria used for adult depressive disorders with children. Criteria for major depressive disorder include dysphoric mood or pervasive loss of interest or pleasure, in addition to at least 4 of the following 8 symptoms: 1) change in appetite and/or weight, 2) insomnia
or hypersomnia, 3) psychomotor agitation or retardation, 4) loss of interest or pleasure in usual activities, 5) loss of energy or fatigue, 6) feelings of worthlessness, self-reproach, or excessive or inappropriate guilt, 7) complaints or evidence of diminished ability to think or concentrate, and 8) recurrent thoughts of death or suicide.

*DSM-III* does add associated features for children and adolescents and states that these associated features vary with age. For example, in prepubertal children, separation anxiety may develop and children may cling, refuse to attend school and fear that he or she or a parent may die. In adolescent boys, "negativistic or frankly antisocial behavior" may appear, as well as restlessness, irritability, aggression, school difficulties, substance abuse, and social withdrawal. An advantage of *DSM-III* in empirical investigation is its "uniform applicability" by different researchers (Kashani, et al., 1981); however, whether refinements need to be made to associated features, or to symptoms themselves, is yet to be determined, and therefore, is a limitation.

Since the parameters of depression in children have yet to be defined, all *DSM-III* depressive disorders (i.e., major depression, recurrent and single episode; dysthymia; atypical depression; and adjustment disorder with depressed mood) were included in the definition of a psychiatric
diagnosis of depression in this investigation. All types of DSM-III conduct disorders (i.e., socialized, nonaggressive; socialized, aggressive; undersocialized, aggressive; undersocialized, nonaggressive) were included in the definition of a psychiatric diagnosis of conduct disorder.

The Children's Depression Inventory. The Children's Depression Inventory (CDI) was developed originally as a research instrument by Kovacs (1980/81) in collaboration with Beck using the adult Beck Depression Inventory as a model (Kovacs & Beck, 1977). It has been one of the most widely used self-report instrument for clinical research in childhood depression (Kazdin, 1981). It has been used in research as a criterion measure of depression in investigations of depressed versus nondepressed children, as a comparison in the validation of other methods for assessing depression in children, and to discriminate between children with psychiatric diagnosis of major depressive disorder from children with other psychiatric conditions (Siegel, 1986). Clinical and research settings have included public and private schools, child inpatient and outpatient psychiatric facilities, and pediatric medical settings (Siegel, 1986).

The CDI is a 27-item self-rating scale designed to identify the severity and nature of depressive symptoms in children and adolescents ages 8-17 years. Each of the 27
items describes a different symptom of childhood depression, including disturbances in mood and hedonic capacity, vegetative functions, self-evaluation, and interpersonal behaviors. The CDI assesses all the diagnostic criteria in DSM-III except psychomotor retardation or agitation. For each item there are 3 sentences (e.g., "I am bad all the time," "I am bad many times," "I am bad once in a while"), and the child is required to choose the sentence that best describes him or her during the previous two weeks. Responses are scored on a 0 to 2 scale with 2 representing a severe form of the depressive symptom and 0 representing the absence of the symptom, yielding a potential score range of 0-54. Estimated time for administering the CDI is 20 minutes. Reading level for the CDI is estimated at the first grade level.

In the most recent manual for the CDI (Kovacs, 1992), the author suggests cutoff scores for degrees of severity of depression using the CDI. The empirically derived cutoff scores are based on studies of various groups of children from "normal" to groups with varying psychiatric diagnoses. Kovacs (1992) suggests a cutoff score of 13 as useful in research situations in which the CDI is not used in conjunction with clinical evaluations to select depressed subjects. A cutoff score of 13 has a sensitivity of 51% (i.e., about 49% of clinically depressed subjects will be
missed) and a specificity of 75% (i.e., about 25% of subjects taking the CDI will be identified mistakenly as having a depressive disorder). A CDI cutoff score of 11 is suggested when the CDI is used along with a clinical evaluation to permit the rejection of false positive cases. A cutoff score of 11 has a sensitivity of 67% (i.e., about 33% of the clinically depressed subjects will be missed) and a specificity of 60% (i.e., about 40% of subjects will be mistakenly identified as being depressed). Predictive values for cutoff scores of 13 and 11 are 67% and 62%, respectively (Kavan, 1992; Siegel, 1986).

Normative data on CDI scores and their relationship to depression in children and adolescents are based upon a large number of studies including 1,940 public school students and 1,030 psychiatric inpatient children and adolescents (Kovacs, 1992). Norms are available for specific age groups.

The CDI appears to have adequate internal consistency for clinic and nonclinic samples; reliability coefficients range from .71 to .89 (Kovacs, 1992). Split-half reliability coefficients range from .74 to .57 (Siegel, 1986). To date, test-retest reliability has been found to be variable across different populations and time intervals. Siegel (1986) purported that this variability may reflect the episodic nature of some depressive symptoms such as mood
that are likely to fluctuate from day to day in children, whereas Kovacs (1992) attributes drops as regression to the mean, i.e., as being statistical in nature. Saylor, Finch, Spirito, and Bennett (1984) found reliability to be more acceptable with clinical samples (.87) than with normals (.38). Finch, Saylor, Edwards, and McIntosh (1987) found test-retest reliability coefficient ranges from .82 over 2 weeks to .67 for longer intervals up to 6 weeks in a normal population of 108 preadolescents and adolescents; Nelson, Politano, Finch, Wendel, and Mayhall (1987) reported test-retest reliability coefficients of .62 and .47 over 10 and 30 day intervals for 96 psychiatric inpatient children.

There is some evidence of criterion-related validity; correlations between CDI scores and variables that are theoretically consistent with depression have generally been in the low to moderate range (Siegel, 1986). Concurrent validity studies have determined that CDI scores correlate positively with scores from the Revised Children's Manifest Anxiety Scale and negatively with scores from the Coopersmith Self-Esteem Inventory (Kovacs, 1992). There has been some evidence of criterion-related validity and construct validity of the CDI (Kavan, 1992); evidence for discriminant validity is insufficient (Kovacs, 1992; Siegel, 1986). Some reviewers of the CDI (see e.g., Knoff, 1992) have criticized the construct, discriminant, and predictive
validity of the CDI as problematic and caution against using the CDI as an independent or dependent variable in research investigations. Others, however, (e.g., Kavan, 1992; Siegel, 1986) indicate that internal consistency and validity of the CDI appear adequate for a research instrument.

Investigations utilizing factor analysis of the CDI indicate that the CDI is a multidimensional instrument when used with populations of emotionally disturbed children (Finch, Fleming, & Spirito, 1982; Kovacs, 1992; Nelson, Politano, Sorenson, & Zeman, 1983; Politano, Nelson, Evans, Sorenson, & Zeman, 1986) but seems to be unidimensional with normal children (Kovacs, 1983 cited in Politano et al., 1986). More recent studies of the CDI as a multidimensional instrument with clinical populations (see e.g., Weiss & Weisz, 1988; Weiss et al., 1991; Weiss et al., 1992) were summarized in this study's review of the literature for developmental studies.

Advantages to using the CDI in a developmental study were previously cited by other researchers (Weiss et al., 1992), e.g., it allows comparisons of broad age groups; the minimal time and effort demanded of children for completion of the items minimizes the likelihood of self-selection bias; and a broad spectrum of behaviors, thoughts, feelings and somatic problems are assessed by CDI items.
The Problem-Oriented Record. The Problem-Oriented Record (POR) is a systematic format of medical record documentation developed by Weed (1969). Although initially designed for more traditional medical settings, the POR has also been widely used in psychiatric settings and has been sanctioned by the Joint Commission for the Accredidation of Hospitals (JCAH) (Huffman, 1990; JCAH, 1985; Ryback, 1974; Sturm, 1987). The essential feature of the POR is the development of the problem list, i.e., a numbered listing of all problems identified by the clinical staff, the patient, and the patient's significant others, i.e., parents, guardians, siblings, teachers, etc. "Problems" are anything that require management or diagnostic workup (Huffman, 1990) and may include specific symptoms, behaviors, diagnoses, or medical, social, economic, or demographic problems. The problem list is then generally used to generate patient-specific treatment plans as part of the patient's overall medical management.

For the purposes of this investigation, a general problem behavior list of 180 behaviors developed from the pooled behaviors of the total research population and coded by the original researchers (see Appendix A) was used by this researcher to develop a list of POR behaviors to investigate differences in behaviors between groups of depressed and nondepressed subjects. Prior to developing
the POR behavior list for this investigation, behaviors associated with depression in children or adolescents as either symptoms or associated features of depressive disorders were identified from the previous research literature (see e.g., APA 1980, 1987, 1988; Apter et al., 1988; Bemporad & Wilson, 1978; Berlin, 1979; Cantwell & Baker, 1991; Carlson & Cantwell, 1980, 1982; Carlson & Kashani, 1988; Cole & Carpentieri, 1990; Connell, 1972; Cytryn & McKnew, 1972, 1974, 1979; Cytryn et al., 1980; Digdon & Gotlib, 1986; Edelbrock & Achenbach, 1980; Garber, 1984; Geller et al., 1985; Glaser, 1967; Harrington et al., 1991; Herzog & Rathbun, 1982; Jensen et al., 1988; Kashani et al., 1982; Kashani et al., 1981; Kashani et al., 1989; Kaslow et al., 1984; Kennedy et al., 1989; Koenig, 1988; Kovacs et al., 1984a, 1984b; Kovacs & Paulauskas, 1984; Lesse, 1977, 1979, 1981; Marriage et al., 1986; McCauley et al., 1991; McConville et al., 1973; McDermott, 1980; McKnew et al., 1983; Mitchell et al., 1988; Nelson et al., 1987; Nieminen & Matson, 1989; Nolan-Hoeksema et al., 1991; Philips, 1979; Politano et al., 1989; Poznanski, 1982; Poznanski et al., 1985; Poznanski & Zrull, 1970; Puig-Antich, 1982; Reinherz et al., 1990; Rutter, 1986; Ryan & Puig-Antich, 1986; Ryan et al., 1987; Steward et al., 1980; Strausse et al., 1984; Toolan, 1962; Trad, 1987; Ushakov & Girich, 1972; Weinberg et al., 1973; Weiss & Garber, 1990;
Weiss & Weisz, 1988; Weiss et al., 1991, 1992; Worchel et al., 1987). These behaviors were then matched with 63 behaviors on the general behavior problem list, and were recoded (see Appendix B). Since several of the 63 behaviors were overlapping, the match yielded a total of 40 POR behaviors for this study. The 40 recoded POR behaviors included: suicide (SUICIDE), disobediance (DSOBEY), worried, fearful, or unusual thoughts (THOUGHT), antisocial behaviors (ANTSOC), social and emotional withdrawal (WTHDRAW), aggressive behaviors (AGRESIVE), problems with attention and distractibility (ADD), poor self-concept (SLFCNCPT), eating problems (EAT), sleep problems (SLEEP), sad or depressed appearance (SAD), immature social or self-help skills (IMATUR), feeling inferior (INFERIOR), stubborn (STUBRN), negativism (NEGATVSM), emotional lability or moodiness (MOODY), tearfulness or crying (CRY), anxiety (ANXIETY), self-abusive (SLFABUSE), temper tantrums (TANTRUM), poor peer relationships (NOFRIEND), running away (RUN), separation anxiety or school refusal (SEPRATE), enuresis (ENURES), encopresis (ENCOPRS), substance abuse (DRUGS), delusions (DELUDED), restless behavior (RESTLESS), truancy (TRUANT), school underachievement (SCHFAIL), somatic complaints (SOMATIC), disruptive behavior (DISRUPT), nightmares or terrors (NITEMARS), lethargy (LETHARY), irritable (IRRITBLE), sexual promiscuity (PROMSEX),
hostility or anger (ANGRY), guilt (GUILT), confused thoughts (CONFUSD), and feeling rejected (NOLOVE). As indicated in Appendix B, thirteen of the forty POR behaviors included more than one behavior from the general behavior problem list because the behaviors fell into the same or similar behavioral category, e.g., suicide is comprised of both suicidal behavior and suicidal threats and thoughts.

**Research Design**

This research was a comparative study (ex post facto) utilizing groups of inpatient children and adolescents defined according to depression status (depressed versus nondepressed) or psychiatric diagnosis (affective disorder versus conduct disorder) or age range (children versus adolescents). Group membership was determined by the specific research question being analyzed.

Depression status was determined by total score on the Children's Depression Inventory (CDI) (Kovacs, 1980/81; 1992). Psychiatric diagnosis was made using DSM-III criteria. Thus, in this study depression was determined by two criterion measures, psychiatric diagnosis using DSM-III criteria and total score on the CDI as defined by Kovacs (1983).

In developmental research of childhood depression, there has been a tendency to divide children into four broad categories of age, i.e., infancy, preschool, school age, and
adolescence (Garber, 1984). Since the population from which this study was drawn encompassed ages 5-20, subjects were divided into two broad age groups (children and adolescents) to allow comparison with previous studies. Children included all subjects younger than 13 years; adolescents included all subjects 13 years and older.

**Specific Research Hypotheses**

The following null hypotheses were tested:

1. There will be no difference between depressed and nondepressed subjects, ages 5 to 20 years, on POR behaviors when depression is defined by total score on the CDI.

2. There will be no difference between depressed subjects, ages 5 to 20 years, and conduct-disordered subjects, ages 5 to 20 years, on POR behaviors when depression is defined by psychiatric diagnosis using DSM-III criteria.

3. There will be no difference between depressed subjects, ages 5 to 20 years, and nondepressed conduct-disordered subjects, ages 5 to 20 years, on POR behaviors when depression is defined by psychiatric diagnosis using DSM-III criteria and by total CDI score.

4. There will be no difference between depressed children (under 13 years of age) and depressed adolescents (13 to 20 years of age) on POR behaviors when depression is defined by psychiatric diagnosis using DSM-III criteria.
Statistical Procedure

Demographic variables (age, sex, race, total CDI score, and psychiatric diagnosis) were examined descriptively and frequency distributions reported using sample means and percentages for the total research population and for each of the sample groups. Sample groups for each research question were then examined for group differences on appropriate demographic variables utilizing t-tests.

Discriminant function analysis was used to analyze group differences for each research question. Discriminant function analysis was chosen due to the complex nature of childhood depression with its lack of definitive parameters. The purpose of this study was to add to the definition of the broad parameters of phenomenology in childhood depression rather than to make any attempt to identify more narrow descriptors for which univariate statistical analysis would be more appropriate.

For the discriminant function, criteria for membership in the research sample groups varied depending on the research question being analyzed, i.e., depressed vs. nondepressed based on CDI scores; depressed vs. conduct-disordered based on DSM-III diagnosis; depressed vs. nondepressed conduct-disordered based on DSM-III diagnosis and CDI scores; and depressed children vs. depressed adolescents (using DSM-III criteria for depression). The
criterion (dependent) variables for the discriminant function were total score on the CDI and/or DSM-III diagnosis for depressive disorder or conduct disorder for the first three research questions. Age was the criterion variable for the fourth research question.

The predictor (independent) variables for all research questions were the 40 POR behaviors identified from previous research literature as related to depressed children and adolescents as symptoms or associated features of a depressive syndrome.

Ethical Considerations

This researcher had no interaction with the research subjects as all data was archival existing on computer disc. All subjects were coded by case number by the original researchers, therefore confidentiality was not an issue. Consent forms to use collected data for research purposes were obtained by the original researchers from each subject and from the subject's parent or guardian as part of the hospital admissions process.

The research proposal was reviewed and approved by the School of Education's Human Subjects Research Committee at The College of William and Mary.
CHAPTER 4
ANALYSIS OF RESULTS

Data retrieved from the archival data pool and used in this research project included demographic information for all research population subjects and POR behaviors (coded by the previous researchers then combined and recoded by this researcher) for all group sample subjects. Demographic variables included age, sex, race, and total scores on the CDI. DSM-III diagnoses of affective and conduct disorders for population and sample subjects were also obtained as demographic variables. Group means were calculated for age and total CDI score. Sex, race, and DSM-III diagnosis of affective or conduct disorders were analyzed for frequency within the groups and reported as percentages. T-tests were used to determine whether there were significant demographic differences between sample groups for each research question in regard to age and total CDI score. A discriminant function analysis (direct method) using the 40 POR behaviors as predictor (independent) variables for each of the four research questions was conducted. Total score on the CDI and/or DSM-III diagnosis of depressive or conduct disorder were used as criterion (grouping) variables for each of the
discriminant functions performed for the first, second, and third research questions. Age was used as the criterion (grouping) variable for the fourth research question.

Demographic Data

Information on each of the demographic variables was not available from the archival data pool for all subjects. The number of subjects for which each demographic variable has been noted.

Demographics of the Research Population

There were a total of 630 subjects in the research population. Mean age for the population was 13 years, 4 months ($n=626; \text{SD}=2$ years, 9 months); age range was 5 years, 0 months to 20 years, 1 month. Only one subject was under the age of 6 years, 0 months, and one subject was older than 18 years, 0 months. Caucasians comprised 67.6% ($n=426$) of the population while 29.5% ($n=186$) were African-American, .2% ($n=1$) were Hispanic, and 2.7% ($n=17$) were of unknown race. Four hundred and thirty-one subjects (68.4%) were males and 189 subjects (30.0%) were females (10 subjects not designated as to sex). Total CDI scores were available for 451 subjects; the mean score was 13.09 ($SD=8.47$). DSM-III diagnostic categories for all subjects are presented in Table 1.
Table 1.
Frequencies of DSM-III Diagnostic Categories

<table>
<thead>
<tr>
<th>DSM-III Categories</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disorders Usually First Evident in Infancy, Childhood or Adolescence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Behavioral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Conduct disorder</td>
<td>130</td>
<td>20.6</td>
</tr>
<tr>
<td>(2) Attention deficit</td>
<td>36</td>
<td>5.7</td>
</tr>
<tr>
<td>b. Anxiety</td>
<td></td>
<td></td>
</tr>
<tr>
<td>........................</td>
<td>16</td>
<td>2.5</td>
</tr>
<tr>
<td>c. Physical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.....................</td>
<td>3</td>
<td>.5</td>
</tr>
<tr>
<td>d. Developmental</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.....................</td>
<td>10</td>
<td>1.6</td>
</tr>
<tr>
<td>e. Intellectual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.....................</td>
<td>4</td>
<td>.6</td>
</tr>
<tr>
<td>f. Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.....................</td>
<td>24</td>
<td>3.8</td>
</tr>
<tr>
<td>Organic Mental</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.....................</td>
<td>7</td>
<td>1.1</td>
</tr>
<tr>
<td>Substance Use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.....................</td>
<td>4</td>
<td>.6</td>
</tr>
<tr>
<td>Schizophrenic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.....................</td>
<td>27</td>
<td>4.3</td>
</tr>
<tr>
<td>Paranoid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.....................</td>
<td>5</td>
<td>.8</td>
</tr>
<tr>
<td>Psychotic: Not Elsewhere Classified</td>
<td>33</td>
<td>5.2</td>
</tr>
<tr>
<td>Affective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.....................</td>
<td>120</td>
<td>19.0</td>
</tr>
<tr>
<td>Anxiety</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.....................</td>
<td>10</td>
<td>1.6</td>
</tr>
<tr>
<td>Psychosexual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.....................</td>
<td>1</td>
<td>.2</td>
</tr>
<tr>
<td>Disorders of Impulse Control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.....................</td>
<td>4</td>
<td>.6</td>
</tr>
<tr>
<td>Adjustment Disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.....................</td>
<td>71</td>
<td>11.3</td>
</tr>
<tr>
<td>Personality Disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.....................</td>
<td>86</td>
<td>13.7</td>
</tr>
<tr>
<td>Psychological Factors Affecting Physical Condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.....................</td>
<td>1</td>
<td>.2</td>
</tr>
<tr>
<td>Conditions Not Attributed to a Mental Disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.....................</td>
<td>3</td>
<td>.5</td>
</tr>
<tr>
<td>Missing Diagnosis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.....................</td>
<td>35</td>
<td>5.6</td>
</tr>
<tr>
<td>Total</td>
<td>630</td>
<td>100.0</td>
</tr>
</tbody>
</table>
A detailed distribution of *DSM-III* affective and conduct disorders is presented in Table 2. One hundred-nineteen subjects (18.9%) were diagnosed with the *DSM-III* affective disorders targeted in this investigation (major depression, recurrent and single episode; dysthymic disorder; atypical depression; and adjustment disorder with depressed mood); 130 subjects (20.6%) were diagnosed with a *DSM-III* conduct disorder (see Table 2).

Table 2.
Population Frequencies of Depressive and Conduct Disorders

<table>
<thead>
<tr>
<th>DSM-III Diagnosis</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Affective Disorders:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major depression, recurrent</td>
<td>18</td>
<td>2.9</td>
</tr>
<tr>
<td>Major depression, single episode</td>
<td>2</td>
<td>.3</td>
</tr>
<tr>
<td>Dysthymic</td>
<td>91</td>
<td>14.4</td>
</tr>
<tr>
<td>Atypical depression</td>
<td>1</td>
<td>.2</td>
</tr>
<tr>
<td>Adjustment disorder, depressed</td>
<td>7</td>
<td>1.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>119</td>
<td>18.9</td>
</tr>
<tr>
<td><strong>Conduct Disorders:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undersocialized, aggressive</td>
<td>75</td>
<td>11.9</td>
</tr>
<tr>
<td>Undersocialized, nonaggressive</td>
<td>16</td>
<td>2.5</td>
</tr>
<tr>
<td>Socialized, aggressive</td>
<td>33</td>
<td>5.2</td>
</tr>
<tr>
<td>Socialized, nonaggressive</td>
<td>6</td>
<td>1.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>130</td>
<td>20.6</td>
</tr>
<tr>
<td><strong>Other disorders</strong></td>
<td>381</td>
<td>60.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>630</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Demographics on the Sample Population for the First Research Question

A total of 451 subjects formed the sample for the first research question when CDI scores above and below 13 were used as the criterion variable. Cutoff scores were established at greater than or equal to 13 based on previous research (Kovacs, 1983; 1992) where a CDI total score of 13 or above was indicative of severe depression. Subjects with a total CDI score of less than 13 were assigned to the nondepressed group.

Depressed subjects (n=204) ranged in age from 6 years, 1 month to 20 years, 1 month with a mean age of 13 years, 5 months (SD=2 years, 8 months). One hundred thirty-nine subjects (68.1%) were males; 64 (31.4%) were females (1 case not designated). One hundred thirty-five (66.2%) were Caucasian; 66 (32.4%) were African-American; the race of 3 subjects (1.5%) was unknown. The 204 depressed subjects had a mean total CDI score of 20.5 (SD=6.68); in this group CDI scores ranged from 13 (the minimum score for inclusion in this group) to 45. Thirty-six subjects (17.7%) in this depressed group also had a primary DSM-III diagnosis of a depressive disorder; 49 (24%) had a primary DSM-III diagnosis of a conduct disorder (refer to Table 3 for frequencies within depressive and conduct disorder categories).
Table 3. DSM-III Diagnostic Frequencies for CDI Only Groups

<table>
<thead>
<tr>
<th>DSM-III DIAGNOSIS</th>
<th>CDI &gt;= 13</th>
<th></th>
<th>CDI &lt; 13</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td><strong>Affective Disorders:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atypical depression</td>
<td>1</td>
<td>.5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Adjustment disorder, depressed mood</td>
<td>2</td>
<td>1.0</td>
<td>4</td>
<td>1.6</td>
</tr>
<tr>
<td>Dysthymia</td>
<td>22</td>
<td>10.8</td>
<td>55</td>
<td>22.3</td>
</tr>
<tr>
<td>Major depression, recurrent</td>
<td>10</td>
<td>4.9</td>
<td>3</td>
<td>1.2</td>
</tr>
<tr>
<td>Major depression, single episode</td>
<td>1</td>
<td>.5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>36</td>
<td>17.7</td>
<td>62</td>
<td>25.1</td>
</tr>
<tr>
<td><strong>Conduct Disorders:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undersocialized, aggressive</td>
<td>27</td>
<td>13.2</td>
<td>31</td>
<td>12.6</td>
</tr>
<tr>
<td>Undersocialized, nonaggressive</td>
<td>8</td>
<td>3.9</td>
<td>6</td>
<td>2.4</td>
</tr>
<tr>
<td>Socialized, aggressive</td>
<td>11</td>
<td>5.4</td>
<td>17</td>
<td>6.9</td>
</tr>
<tr>
<td>Socialized, nonaggressive</td>
<td>3</td>
<td>1.5</td>
<td>3</td>
<td>1.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>49</td>
<td>24.0</td>
<td>57</td>
<td>23.1</td>
</tr>
<tr>
<td><strong>Miscellaneous diagnoses</strong></td>
<td>119</td>
<td>58.3</td>
<td>128</td>
<td>51.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>204</td>
<td>100.0</td>
<td>247</td>
<td>100.0</td>
</tr>
</tbody>
</table>

A total of 247 subjects were in the nondepressed group. Subjects ranged in age from 5 years to 17 years, 1 month (n=246; M=12 years, 11 months; SD=2 years, 10 months). One hundred seventy-five (70.9%) of the subjects were males; 68
(27.5%) were females (4 cases not designated). One hundred seventy-four subjects (70.4%) were Caucasian; 67 (27.1%) were African-American; 1 (.4%) was Hispanic; and 5 (2%) were unknown. Mean for the total CDI scores for the 247 nondepressed subjects was 6.96 with a range of reported scores from 0 to 12 (12 was the maximum allowable score for inclusion in the nondepressed group). A primary DSM-III diagnosis of depression was found for 62 subjects (25.1%); 57 subjects (23.1%) were found to have a primary DSM-III diagnosis of conduct disorder (refer to Table 3).

A t-test indicated no significant difference \[ t(438)=1.86, p=.06 \] between the depressed and nondepressed groups on age. As was expected, there was a significant difference \[ t(284)=26.4, p<.0001 \] between groups on total CDI score.

Demographics on the Sample Population for the Second Research Question

A total of 231 subjects comprised the research sample when the criterion variable was DSM-III diagnosis. Subjects were divided into 2 groups based on the subject's primary DSM-III diagnosis of affective or conduct disorder. Subjects with a primary DSM-III diagnosis of affective disorder (depressed; major depression, recurrent and single episode; dysthymia; atypical depression; and adjustment disorder with depressed mood) with no secondary DSM-III diagnosis of
conduct disorder were placed in the depressed group. In this group, 77.3% were diagnosed as dysthymic, 18.9% with major depression, recurrent; and 3.8% as adjustment disorder with depressed mood. Subjects with a primary DSM-III diagnosis of conduct disorder (64.2% undersocialized, aggressive; 13.6% undersocialized, nonaggressive; 22.2% socialized, aggressive) with no secondary DSM-III depressive diagnosis were placed in the nondepressed group.

A total of 103 subjects were in the depressed group for analysis of the second research question. Subjects ranged in age from 5 years to 17 years, 1 month with a mean age of 12 years, 11 months (SD=2 years, 6 months). There were 71 males (68.9%) and 32 females (31.1%). Eighty subjects (77.7%) were Caucasian; 22 (21.4%) were African-American; the race of one subject was unknown. The mean total score on the CDI for this group of subjects (n=83) was 11.87 (SD=9.10); range of total CDI scores was 0 to 45.

One hundred twenty-eight subjects were classified as conduct-disordered with an age range of 6 years, 1 month to 18 years, 0 months and a mean age of 13 years, 10 months (SD=2 years, 9 months). Males comprised 75% (n=96) of the group, while females numbered 31 (24.2%) in the group (one subject not designated). Racial composition of the conduct-disordered group was: 77 Caucasians (60.2%), 48 African-Americans (37.5%), 3 unknown (2.3%). Total CDI scores
ranging from 0 to 39 were available for 101 subjects in this group yielding a mean CDI score of 12.85 (SD=8.44).

An analysis of differences between groups on demographic variables of age and total CDI scores was performed using t-tests. A significant difference was found between groups for age \[ t(225)=-2.72, p=.007 \]; subjects in the depressed group tended to be younger than subjects in the conduct-disordered group. Although the difference in group total CDI scores was not significant \[ t(170)=-.75, p=.452 \]; it was interesting that the mean total CDI score for the conduct-disordered group was higher than for the depressed group since the CDI is reportedly a measure of the severity of depression in children and adolescents.

**Demographics on the Sample Population for the Third Research Question**

The criterion variable for analysis of the third research question was *DSM-III* diagnosis and significant total score on the CDI yielding a total of 91 subjects in this research sample. Subjects who had a primary *DSM-III* diagnosis of affective disorder (as described for the second research question), no secondary *DSM-III* diagnosis of conduct disorder, and a total CDI score of 11 or higher met the criteria for inclusion into the depressed group. A cut-off score of 11 or higher was based on previous research indicating a score of 11 was sufficient to indicate severe
depression when the CDI was used in combination with other methods of assessment in diagnosing depression in children (Kovacs, 1983; 1992). Subjects with a primary DSM-III diagnosis of conduct disorder, no secondary DSM-III diagnosis of affective disorder, and a total score of less than 11 on the CDI were placed in the second group for this analysis (see Table 4 for frequency distribution of diagnoses).

The depressed group of subjects (n=43) had a mean age of 13 years, 2 months \((SD=2\text{ years, } 5\text{ months})\) with an age range of 8 years, 0 months to 17 years, 1 month. There were 28 \((65.1\%)\) males and 15 \((34.9\%)\) females. Twenty-nine \((67.4\%)\) subjects were Caucasian, 13 \((30.2\%)\) were African-American, and 1 \((2.3\%)\) was of unknown race. Total CDI scores for this group ranged from 11 (the minimum score for inclusion in this group) to 45; the mean score was 17.95 \((SD=8.64)\).

There were 48 subjects in the second sample group with a mean age of 13 years, 8 months \((SD=3\text{ years, } 0\text{ months})\); ages of subjects ranged from 6 years, 1 month to 17 years, 1 month. Males represented 85.4\% \((n=41)\) of the group; females represented 14.6\% \((n=7)\). Twenty-nine subjects \((60.4\%)\) were Caucasian; 19 \((39.6\%)\) were African-American. The mean total CDI score for this group was 6.02 \((SD=2.83)\) with scores ranging from 1 to 10 (maximum allowable score for inclusion in this group).
Table 4.
Frequencies of Depressive and Conduct Disorders for DSM-III + CDI Groups

<table>
<thead>
<tr>
<th>DSM-III Diagnosis</th>
<th>Depressed + CDI =&gt;11</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Affective Disorders:</strong></td>
<td></td>
</tr>
<tr>
<td>Dysthymic</td>
<td>74.2</td>
</tr>
<tr>
<td>Major depression, recurrent</td>
<td>17.8</td>
</tr>
<tr>
<td>Major depression, single episode</td>
<td>1.6</td>
</tr>
<tr>
<td>Atypical depression</td>
<td>1.6</td>
</tr>
<tr>
<td>Adjustment disorder, depressed</td>
<td>4.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Conduct Disorders:</th>
<th>Conduct disorder + CDI&lt;11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undersocialized, aggressive</td>
<td>56.6</td>
</tr>
<tr>
<td>Undersocialized, nonaggressive</td>
<td>13.2</td>
</tr>
<tr>
<td>Socialized, aggressive</td>
<td>24.5</td>
</tr>
<tr>
<td>Socialized, nonaggressive</td>
<td>5.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100.0</td>
</tr>
</tbody>
</table>

A t-test for significant demographic differences between the two groups for the third research question was performed for age and total CDI score. The analysis indicated that there was no difference between the two groups on age $[t(88)=-.97, \ p=.34]$. There was a significant difference between groups for CDI score $[t(50)=8.66, \ p<.0001]$ with the
depressed group ($M=17.95$) having much higher scores than the conduct disorder group ($M=6.02$).

Demographics on the Sample Population for the Fourth Research Question

All sample subjects for this research question had a primary *DSM-III* diagnosis of affective disorder (including major depression; dysthymia; atypical depression; and adjustment disorder with depressed mood) and no secondary *DSM-III* diagnosis for conduct disorder. The criterion variable was age with subjects less than 13 years of age (i.e., 5 years to 12 years, 11 months) placed in the depressed children's group and subjects aged 13 years or older in the depressed adolescent's group. The total research sample consisted of 103 subjects. The distribution of primary *DSM-III* depressive disorders for this sample of depressed children and adolescents is presented in Table 5.

Fourty-four subjects met the criteria for inclusion in the depressed children's group. The mean age was ten years, 7 months ($SD=1$ year, 5 months) with a range of 5 years, 0 months to 12 years, 1 month. There were 37 males (84.1%) and 7 females (15.9%) in this group. Thirty-seven subjects (84.1%) were Caucasian and 7 (15.9%) were African-American. Total CDI scores ranged from 0 to 23 with a mean of 9.11 ($SD=6.05$); CDI scores were missing for 8 subjects in this group.
Table 5.
Children and Adolescent Group Frequencies for DSM-III Depressive Disorders

<table>
<thead>
<tr>
<th>DSM-III Diagnosis</th>
<th>&lt; 13 years</th>
<th>=&gt; 13 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major depression, recurrent</td>
<td>8.5</td>
<td>19.4</td>
</tr>
<tr>
<td>Major depression, single episode</td>
<td>--</td>
<td>2.8</td>
</tr>
<tr>
<td>Dysthymia</td>
<td>91.5</td>
<td>66.7</td>
</tr>
<tr>
<td>Atypical depression</td>
<td>--</td>
<td>1.4</td>
</tr>
<tr>
<td>Adjustment disorder, depressed mood</td>
<td>--</td>
<td>9.7</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The mean age for the 59 subjects in the depressed adolescent group was 14 years, 8 months (SD=1 year, 5 months) with a range of 13 years to 17 years, 1 month. The group was comprised of 34 males (57.6%); 25 females (42.4%); 43 Caucasians (72.9%); 15 African-Americans (25.4%); and 1 subject of unknown race. Total CDI scores were available for 47 of the 59 subjects. The range of scores was wider
than for the depressed children group with a range of 0 to 45 and a higher mean score of 13.98 (SD=10.45).

T-tests were used to analyze demographic group differences in terms of age and total CDI score. It was found that there was a significant difference between the groups for both age \([t(92)=-14.3, p<.0001]\) and for total CDI score \([t(76)=-2.66, p=.009]\).

Results of the First Research Question

The first research question was whether there was a significant difference between depressed children and adolescents on POR behaviors when depression was defined by total score on the CDI, only. Subjects \((N=448)\) were grouped into 2 groups according to high total CDI score (greater than or equal to 13; \(n=202\)) or low total CDI score (lower than 13; \(n=246\)). Group means were calculated for each of the POR behavior variables. Since the group mean was based on the presence (coded 1) or absence (coded 0) of the POR behavior variable, the statistical group mean actually represents the percentage of occurrence for the POR behavior within the two groups. Frequencies of POR behaviors are summarized and presented as percentages in Table 6. A discriminant function analysis using high or low total CDI score as the criterion variable and the 40 POR behaviors as the predictor variables was not significant \((p=.17)\),
therefore, the statistical hypothesis that there would be no difference between groups was accepted.

Results of the Second Research Question

The second research question was whether there was a significant difference in POR behaviors between depressed children and adolescents and conduct disordered children and adolescents when the presence or absence of depression was defined by psychiatric diagnosis using *DSM-III* criteria, only. Group means were calculated and frequencies for POR behaviors within the two groups are presented as percentages in Table 7. The discriminant function analysis using the 40 POR behaviors as predictor variables was significant (*p*< .0001) when subjects (*N*=229) were grouped according to *DSM-III* diagnosis (depressed, no secondary conduct disorder diagnosis, *n*=103; conduct disorder, no secondary depressive diagnosis, *n*=126). The statistical hypothesis that there would be no significant group differences was therefore rejected. The most significant predictor variables contributing to the discriminant function were sadness (*r*= .55), poor self-concept (*r*= .43), aggression (*r*= -.37), and school underachievement (*r*= .31) with sadness, poor self-concept, and school underachievement having discriminatory power in the direction of the depressed group and aggression having discriminating power in the direction of the conduct-disordered group.
Table 6. Percentage Frequencies of POR Behaviors

<table>
<thead>
<tr>
<th>POR Behavior Variable</th>
<th>CDI =&gt; 13</th>
<th>CDI &lt; 13</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUICIDE</td>
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</tr>
<tr>
<td>DSObey</td>
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<td>44.7</td>
</tr>
<tr>
<td>THOUGHT</td>
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<td>6.9</td>
</tr>
<tr>
<td>ANTSoC</td>
<td>30.7</td>
<td>37.0</td>
</tr>
<tr>
<td>WTHDRAW</td>
<td>18.8</td>
<td>17.1</td>
</tr>
<tr>
<td>AGRESIVE</td>
<td>51.5</td>
<td>50.8</td>
</tr>
<tr>
<td>ADD</td>
<td>19.8</td>
<td>28.5</td>
</tr>
<tr>
<td>SLFCNCPT</td>
<td>24.8</td>
<td>37.4</td>
</tr>
<tr>
<td>EAT</td>
<td>5.0</td>
<td>2.0</td>
</tr>
<tr>
<td>SLEEP</td>
<td>8.4</td>
<td>9.4</td>
</tr>
<tr>
<td>SAD</td>
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<td>41.5</td>
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<tr>
<td>IMATUR</td>
<td>14.9</td>
<td>12.6</td>
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<td>INFERIOR</td>
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<td>4.9</td>
</tr>
<tr>
<td>STUBRN</td>
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<td>0.0</td>
</tr>
<tr>
<td>NEGATVSM</td>
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<td>0.8</td>
</tr>
<tr>
<td>MOODY</td>
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<tr>
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<tr>
<td>NOFRIEND</td>
<td>28.7</td>
<td>35.4</td>
</tr>
<tr>
<td>RUN</td>
<td>24.8</td>
<td>15.0</td>
</tr>
<tr>
<td>SEPRATE</td>
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</tr>
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<td>ENURES</td>
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<td>ENCopres</td>
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<td>3.3</td>
</tr>
<tr>
<td>DRUGS</td>
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<td>16.3</td>
</tr>
<tr>
<td>DELUDED</td>
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<td>1.2</td>
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<td>TRUANT</td>
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<td>22.4</td>
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<td>1.2</td>
</tr>
<tr>
<td>ANGRY</td>
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<td>2.0</td>
</tr>
<tr>
<td>GUILT</td>
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<td>0.8</td>
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<tr>
<td>CONFUSD</td>
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<td>1.2</td>
</tr>
<tr>
<td>NOLOVE</td>
<td>11.4</td>
<td>11.8</td>
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Table 7.
Percentage Frequencies of POR Behaviors

<table>
<thead>
<tr>
<th>POR Behavior Variable</th>
<th>DSM-III Only Group</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>Depressed</td>
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<td>DSOBEY</td>
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</tr>
<tr>
<td>THOUGHT</td>
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</tr>
<tr>
<td>ANTSOC</td>
<td>36.9</td>
</tr>
<tr>
<td>WTHDRAW</td>
<td>18.5</td>
</tr>
<tr>
<td>AGRESIVE</td>
<td>35.0</td>
</tr>
<tr>
<td>ADD</td>
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</tr>
<tr>
<td>SLFCNCPCT</td>
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</tr>
<tr>
<td>EAT</td>
<td>5.8</td>
</tr>
<tr>
<td>SLEEP</td>
<td>12.6</td>
</tr>
<tr>
<td>SAD</td>
<td>83.5</td>
</tr>
<tr>
<td>IMATUR</td>
<td>10.7</td>
</tr>
<tr>
<td>INFERIOR</td>
<td>3.9</td>
</tr>
<tr>
<td>STUBRN</td>
<td>0.0</td>
</tr>
<tr>
<td>NEGATVSM</td>
<td>1.9</td>
</tr>
<tr>
<td>MOODY</td>
<td>6.8</td>
</tr>
<tr>
<td>CRY</td>
<td>8.7</td>
</tr>
<tr>
<td>ANXIETY</td>
<td>16.5</td>
</tr>
<tr>
<td>SLFABUSE</td>
<td>6.8</td>
</tr>
<tr>
<td>TANTRUMS</td>
<td>14.6</td>
</tr>
<tr>
<td>NOFRIEND</td>
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</tr>
<tr>
<td>RUN</td>
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<tr>
<td>SEPERATE</td>
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<tr>
<td>ENURES</td>
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<td>ENCPORS</td>
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</tr>
<tr>
<td>DRUGS</td>
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</tr>
<tr>
<td>DELUDED</td>
<td>1.0</td>
</tr>
<tr>
<td>RESTLESS</td>
<td>0.0</td>
</tr>
<tr>
<td>TRUANT</td>
<td>6.8</td>
</tr>
<tr>
<td>SCHFAIL</td>
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<tr>
<td>SOMATIC</td>
<td>6.8</td>
</tr>
<tr>
<td>DISRUPT</td>
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<tr>
<td>NITEMARS</td>
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<tr>
<td>ANGRY</td>
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<tr>
<td>GUILT</td>
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<tr>
<td>CONFUSD</td>
<td>1.0</td>
</tr>
<tr>
<td>NOLOVE</td>
<td>19.4</td>
</tr>
</tbody>
</table>
Based upon the discriminant function, the correct overall classification of subjects as depressed or conduct-disordered was 83.8%. Prediction rate for the conduct disordered group (88.1%) was more accurate than for the depressed group (78.6%).

Results for the Third Research Question

The third research question was whether there was a significant difference between depressed (no secondary conduct disorder diagnosis) children and adolescents and conduct-disordered (no secondary depressive diagnosis) children and adolescents on POR behaviors when depressed was defined by a combination of psychiatric diagnosis using DSM-III criteria and total CDI score. When subjects (N=90) were grouped according to DSM-III diagnosis of depression (primary depression and no secondary conduct disorder) and high (11 or higher) total CDI score (n=43) or DSM-III diagnosis of conduct disorder (primary with no secondary depression) and low (less than 11) total CDI score (n=47), the discriminant function using the 40 POR behaviors as predictor variables was significant (p=.0006). The statistical hypothesis that there was no difference between the two groups was rejected. The frequency distribution of the POR behaviors between the two groups is presented in Table 8.
### Table 8.
Percentage Frequencies of POR Behaviors

<table>
<thead>
<tr>
<th>POR Behavior Variable</th>
<th>DSM-III + CDI Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Depressed</td>
</tr>
<tr>
<td>SUICIDE</td>
<td>62.8</td>
</tr>
<tr>
<td>DSOBEY</td>
<td>23.3</td>
</tr>
<tr>
<td>THOUGHT</td>
<td>4.7</td>
</tr>
<tr>
<td>ANTSOC</td>
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</tr>
<tr>
<td>WTHDRAW</td>
<td>11.6</td>
</tr>
<tr>
<td>AGRESIVE</td>
<td>34.9</td>
</tr>
<tr>
<td>ADD</td>
<td>11.6</td>
</tr>
<tr>
<td>SLFCNCPT</td>
<td>53.5</td>
</tr>
<tr>
<td>EAT</td>
<td>7.0</td>
</tr>
<tr>
<td>SLEEP</td>
<td>11.6</td>
</tr>
<tr>
<td>SAD</td>
<td>88.4</td>
</tr>
<tr>
<td>IMATUR</td>
<td>16.3</td>
</tr>
<tr>
<td>INFERIOR</td>
<td>9.3</td>
</tr>
<tr>
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<td>0.0</td>
</tr>
<tr>
<td>NEVATVSM</td>
<td>0.0</td>
</tr>
<tr>
<td>MOODY</td>
<td>7.0</td>
</tr>
<tr>
<td>CRY</td>
<td>4.7</td>
</tr>
<tr>
<td>ANXIETY</td>
<td>7.0</td>
</tr>
<tr>
<td>SLFABUSE</td>
<td>7.0</td>
</tr>
<tr>
<td>TANTRUMS</td>
<td>14.0</td>
</tr>
<tr>
<td>NOFRIEND</td>
<td>25.6</td>
</tr>
<tr>
<td>RUN</td>
<td>14.0</td>
</tr>
<tr>
<td>SEPREATE</td>
<td>4.7</td>
</tr>
<tr>
<td>ENURES</td>
<td>9.3</td>
</tr>
<tr>
<td>ENCOPRS</td>
<td>2.3</td>
</tr>
<tr>
<td>DRUGS</td>
<td>9.3</td>
</tr>
<tr>
<td>DELUDED</td>
<td>0.0</td>
</tr>
<tr>
<td>RESTLESS</td>
<td>0.0</td>
</tr>
<tr>
<td>TRUANT</td>
<td>4.7</td>
</tr>
<tr>
<td>SCHFAIL</td>
<td>27.9</td>
</tr>
<tr>
<td>SOMATIC</td>
<td>11.6</td>
</tr>
<tr>
<td>DISRUPT</td>
<td>4.7</td>
</tr>
<tr>
<td>NITEMARRES</td>
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<tr>
<td>IRRITABLE</td>
<td>2.3</td>
</tr>
<tr>
<td>PROMSEX</td>
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</tr>
<tr>
<td>ANGRY</td>
<td>2.3</td>
</tr>
<tr>
<td>GUILT</td>
<td>2.3</td>
</tr>
<tr>
<td>CONFUSD</td>
<td>2.3</td>
</tr>
<tr>
<td>NOLOVE</td>
<td>16.3</td>
</tr>
</tbody>
</table>
There was one POR variable, sadness \((r=.63)\), that was significant in discriminating between the two groups. Although other variables did not meet the cutoff value criteria for significant variables loading on the function \((r>=.30, \text{ e.g., } 10\% \text{ or greater variance})\), trends in the direction of several other variables may be noteworthy for future research efforts and, therefore, are reported. Aggression \((r=-.29)\), disobedience \((r=-.23)\), and substance abuse \((r=-.22)\) loaded in the direction of the conduct-disordered group while poor self-concept \((r=.23)\) and suicide \((r=.22)\) loaded in the direction of the depressed group.

The percent of grouped subjects correctly classified by the discriminant analysis was: depressed 83.7\%, conduct-disordered 93.6\%. The overall percent of cases grouped correctly was 88.9\%. One predictor variable, sadness, was significant in contributing to the discriminanting power of the function. For this function, it would appear that the absence of sadness may be a more powerful predictor than the presence of sadness.

Results of the Fourth Research Question

The fourth research question was whether there was a difference between depressed children and depressed adolescents on POR behaviors when depression was defined by psychiatric diagnosis using \textit{DSM-III} criteria. This research sample of subjects diagnosed by \textit{DSM-III} criteria for primary
affective disorder, no secondary conduct disorder \((N=103)\) was divided into 2 groups using age as the criterion variable (under 13 years, \(n=44\); 13 years and older, \(n=59\)). Group means for POR behaviors within the two groups are summarized in Table 9. A discriminant function analysis using the 40 POR behaviors as predictor variables did not produce a significant discriminant function \((p = .10)\). The statistical hypothesis that there were no group differences was accepted.
Table 9.
Percentage Frequencies of POR Behaviors

<table>
<thead>
<tr>
<th>POR Behavior Variable</th>
<th>Ages &lt;13 Years</th>
<th>Ages =&gt;13 Years</th>
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</thead>
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<td>6.8</td>
</tr>
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<td>ANTSOC</td>
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</tr>
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<td>WTHDREW</td>
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<tr>
<td>ADD</td>
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<td>10.2</td>
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<td>0.0</td>
</tr>
<tr>
<td>NEGATVSM</td>
<td>2.3</td>
<td>1.7</td>
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<td>MOODY</td>
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<td>10.2</td>
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<td>CRY</td>
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<tr>
<td>TANTRUMS</td>
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<td>RUN</td>
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<td>GUILT</td>
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<tr>
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<tr>
<td>NOLOVE</td>
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<td>10.2</td>
</tr>
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</table>
Research on depression in children is inherently more complex than comparable research with adults because of the child's developmental changes. . .the research on children is still at the preliminary stage of mostly descriptive study. It would be a parsimonious approach for researchers to agree on an initial list of symptoms (i.e., the *DSM-III* criteria), to study these core symptoms within various frameworks, and to work toward ultimately modifying these core criteria as needed for the diagnosis of childhood depression. (Kashani et al., 1981, p. 151)

This research was undertaken as an attempt to expand the research knowledge concerning the behavioral parameters of assessing depression in children and adolescents. It was based on the theoretical rationale that there are developmental differences in the manifestation of depression, thus increasing the likelihood that there are problem behaviors associated with depression in children and adolescents that are not acknowledged by the currently accepted adult criteria for depression. The study was also based on the recognition that a behavioral approach to an
examination of depression in children/adolescents could confirm symptoms previously noted from psychometric studies. In addition, it was assumed that some of these problem behaviors may be similar to masked depressive symptoms, such as aggression, antisocial behavior, or somatic complaints, that have continued to be reported in the research literature. In this study, depression was defined by means of psychiatric diagnosis using DSM-III criteria and/or by high total score on the CDI with a population of clinical inpatient children and adolescents who were then assessed on the presence or absence of a variety of behaviors previously identified in the literature as being symptoms or associated features of childhood depression. This research effort is the first known behavioral study of its kind, i.e., previous research with depressed children and adolescents has focused on either psychiatric or psychometric measures as independent variables whereas this study used a large number of behaviors observed and reported by a number of raters (e.g., parents, teachers, inpatient staff) for each subject independent of the influence of any sort of behavioral checklist.

Discussion of the Results

First Research Question

When subjects were separated solely on CDI scores, i.e., identified as depressed by high scores (13 or greater) and
as nondepressed by scores less than 13, the discriminant function was nonsignificant suggesting that none of the 40 POR behaviors identified from previous literature as depressive discriminate between the two groups when defined psychometrically.

The results may be due to a number of factors related to the use of the CDI as the dependent variable. The use of 13 as the cutoff score for depression is recommended by Kovacs (1983) because it produces a low number of false positive cases (24.5%); however, it also misses about 49% of the clinically depressed cases. Thus, in this sample, it is statistically possible that nearly half of the depressed cases were misclassified as nondepressed which may have confounded the results. An examination of the DSM-III diagnostic frequencies within the two groups supports this as a plausible explanation (see Table 2). Over 25% of the cases in the CDI nondepressed group had been psychiatrically diagnosed with depressive disorders (n=62), primarily dysthymia (n=55, 22.3%), while in the CDI depressed group only 17.7% of the cases (n=36) had been psychiatrically diagnosed with a depressive disorder. Thus, not only was a larger percentage of psychiatrically depressed subjects represented in the CDI nondepressed group but it would appear that approximately 63% of the psychiatrically diagnosed depressed cases were misclassified based on the
CDI cutoff score of 13. It is notable, however, that major depression constituted nearly a third of the affective disorders of the CDI depressed group while only three cases of major depression fell into the CDI nondepressed group. This would suggest that the more severe affective disorders, i.e., major depression, may be more accurately assessed using the CDI than less severe disorders such as dysthymia. This lack of overlap between identification of children as depressed or nondepressed using the CDI and DSM-III criteria with a sample of child psychiatric inpatients was also reported by Kazdin (1989).

Another possible factor affecting results may be related to the predominance of males in the sample (68% in the depressed group, 71% in the nondepressed group); some studies have indicated that self-report scales for childhood depression may be more valid for female adolescents than for male adolescents (see e.g., Shain, Naylor, & Alessi, 1990) due to possible sex differences in the use of denial and in the ability to be in touch with and express depressive feelings. Cantwell and Baker (1991) have also raised the question of how well depressive rating scales can distinguish between normal adolescents with depressive symptoms common to this age group and adolescents with true depressive syndromes and cited the need for further research in this area.
Studies on the CDI have also indicated that the CDI does not discriminate effectively between affective disorders and conduct disorder or other psychiatric conditions with clinical populations (see e.g., Nelson et al., 1987; Siegel, 1986); the frequency distribution of DSM-III diagnoses for high and low CDI scorers in this sample would seem to support those results. As seen in Table 2, DSM-III diagnosis of affective and conduct disorders comprise nearly 50% of the total sample and of each of the two groups (total sample, 45.2%; CDI depressed group, 41.7%; CDI nondepressed group, 48.2%). As has been discussed, DSM-III affective disorders were more prevalent in the CDI nondepressed group; conduct disorders were almost evenly distributed between the two groups with 24% (n=49) falling into the depressed group and 23.1% (n=57) in the nondepressed group. It would appear, then, that the groups are more homogeneous than heterogeneous in terms of psychiatric diagnosis of affective and conduct disorders which may be an additional confounding variable. It has been suggested that the CDI may measure some construct other than depression such as a general level of distress or anxiety (e.g., Nelson et al., 1987; Strauss et al., 1984). A problem is that although the CDI appears to be a relatively homogeneous test, it is still undetermined whether childhood depression (the construct it was designed to measure) is a homogeneous or heterogeneous
syndrome (see e.g., Nelson et al., 1987; Chapter 1 of this study). The lack of any significant differential POR behaviors between high and low CDI scorers may, then, be a function of one or more of the following: (1) the CDI is not, in fact, an accurate measure of depression but measures, instead, some other form of distress; (2) psychiatric diagnosis may not overlap completely with psychometric measures; (3) there may have been a high number of comorbid affective and conduct disorders in this sample which confounded results; or (4) childhood depression may be a heterogeneous disorder which cannot be accurately measured with a single instrument such as the CDI. Recent research has also indicated that the CDI is a multidimensional instrument when used with clinical populations (e.g., Finch et. al., 1982; Kovacs, 1992; Politano et. al., 1986; Weiss et al., 1991; Weiss et al., 1992), and therefore, the use of subscale scores may be more appropriate with this population than the current total score.

Although the statistical analysis was not significant, some trends in the data may be worth reporting since this study is exploratory in the sense of attempting to further define the existing tentative parameters of depression in children and adolescents in terms of its behavioral correlates. An examination of the group means for the 40 POR behaviors analyzed as predictor variables revealed that
the 15 most frequently occurring behaviors for the two groups ranged in frequency from 51% to 11.4% and, with the exception of anxiety (14.6%) in the nondepressed group and feeling rejected (11.4%) in the depressed group, were the same behaviors with little variation in frequency for both groups (see Table 6). The most frequently occurring behaviors were as follows (with percentages reported for the CDI depressed group first followed by the CDI nondepressed percentages): aggression (51%; 50.8%); suicide (47%, 40.7%); sadness (43.5%; 41.5%); disobedience (35.6%; 44.7%); antisocial behavior (30.6%; 37%); poor peer relationships (28.7%; 35.4%); poor self-concept (24.8%; 37.4%); running away (24.8%; 15.1%); attention problems (19.8%; 28.5%); withdrawal (18.8%; 17.1%); school underachievement (15.3%; 22.4%); immature social and self-help skills (14.9%; 12.6%); substance abuse (13.3%; 16.2%); and truancy (11.9%; 13.4%). The remaining twenty-five POR behaviors occurred in less than 10% of the sample subjects for both groups. Since there were no controls for psychiatric diagnosis in this sample of subjects, it is possible that affective and conduct disorders may have co-occurred for a number of subjects in this sample as has been reported in previous literature (see e.g., Carlson & Cantwell, 1980; Craighead, 1991; McDermott, 1980; Puig-Antich, 1982; Ryan & Puig-Antich, 1986; Steward et al., 1980). These results may also
be a reflection of other studies that have indicated similarities of symptoms between affective and conduct disorder making the two disorders difficult to distinguish from one another (e.g., Marriage et al., 1986; Nelson et al., 1987). It has been postulated by others (Edelbrock & Achenback, 1980; Kashani et al., 1982) that there may be a subset of affective and conduct disorder. However, a recent four year longitudinal study (Christ, 1992) on phenomenology and comorbidity of affective and conduct disorder in a clinical sample (N=171) of boys found, contrary to expectations, no significant differences on DSM-III-R symptoms of depression between depressed subjects, conduct-disordered subjects, and depressed + conduct-disordered subjects. Much more investigation needs to be done in this area before definitive conclusions can be drawn.

Second Research Question

Significant results suggest that when subjects are separated based on a DSM-III primary diagnosis of depression (no secondary conduct disorder) or conduct disorder (no secondary depression) four POR behaviors discriminate between the groups: sadness, poor self-concept, school underachievement, and aggression. Sadness, poor self-concept, and school underachievement discriminated in the direction of the DSM-III depressed group of subjects; aggression discriminated in the direction of the DSM-III
conduct-disordered group. Few previous studies exist comparing depressed and conduct-disordered children and adolescents when secondary overlapping diagnoses have been controlled. Most studies have compared depressed subjects with comorbid depressive and conduct-disordered subjects within the sample being investigated (see e.g. Christ, 1992; Cole & Carpentieri, 1990; Harrington et al., 1991; Kashani et al., 1982). Therefore, these results must be interpreted in the light of preliminary findings. These results are consistent with previous findings for differences between depressed and conduct-disordered youth in self-image (Koenig, 1988; Politano et al., 1989) and sadness (Politano et al., 1989). The findings, however, do not support Politano's et al. (1989) results of increased academic difficulty with conduct-disordered youth; in this study, school underachievement was higher in the depressed group. Although a high correlation of aggression and conduct disorder was expected, the finding that aggression discriminated between the depressed and conduct-disordered groups may initially appear contrary to previous findings linking aggression to depressed children and adolescents (see e.g., Digdon & Gotlib, 1986; Geller et al., 1985; Nolen-Hoeksema et al., 1991; Reinherz et al., 1990). However, if aggression is linked to "masked depression" as has been hypothesized (Blumberg, 1981; Gizynski & Shapiro,
1990; Glaser, 1967), it is possible that psychiatric
diagnosis alone may not provide an accurate assessment with
the assumption that some children are not accurately
assessed using adult criteria and therefore may have been
misdiagnosed. An attempt to address this issue was made in
this investigation in the design for the third research
question with separation of groups dependent on both
psychiatric and psychometric variables. It is also possible
that aggression is more correlated with major depression
which is underrepresented in this sample, the most prevalent
affective disorder being dysthymia. Rapoport and Ismond
(1990) have suggested that the presence of sadness in
conduct-disordered youth may indicate the presence of
undiagnosed dysthymia or another affective disorder which is
supported by the results of this study.

An examination of group means for the most frequently
occurring POR behaviors (see Table 7) indicated that the
most frequent problem behaviors for the DSM-III depressed
group were: sadness (84%); poor self-concept (57%);
suicidal behaviors (56%); school underachievement (37%);
antsocial behavior (37%); aggression (35%); poor peer
relationships (35%); and disobediance (34%). Conduct-
disordered children and adolescents had the highest
frequencies for aggression (89%); disobediance (56%);
antsocial behavior (52%); running away (33%); poor peer
relationships (30%); and suicide (29%). Depressed children and adolescents were higher on sadness, poor self-concept, suicidal behaviors, school underachievement, withdrawal, feeling rejected, and anxiety than did conduct-disordered youth. Conduct-disordered youth were higher on aggression, disobedience, antisocial behavior, running away, and truancy. Poor peer relationships was a common problem for subjects in both groups. Several behaviors associated with DSM-III criteria for depression, such as crying, lethargy, change in eating habits, sleep disturbance, irritability, somatic complaints, and guilt occurred more often in the depressed group but frequency of occurrence was low ranging in the depressed group from 0.9% to 8.7% (with the exception of sleep problems which was higher at 12.6%) but differences between groups was minimal.

These findings also do not appear to support a hypothesis offered by Kashani and associates (1982), following their study of depressed and conduct-disordered youth, that some depressed children may adopt somatic response styles to express their pain while conduct-disordered children may adopt aggressive coping styles. In this sample of depressed and conduct-disordered children and adolescents, aggressive behaviors were reported for approximately 35% of the depressed subjects while fewer than 7% had problems with somatic complaints indicating that at
least 58% of the depressed group had neither and some may have had both. The hypotheses appears to hold truer for the conduct-disordered group where 89% had aggressive behaviors while only 3% had somatic complaints. As indicated previously, these results are preliminary in nature and should be interpreted cautiously.

**Third Research Question**

Criteria for group inclusion for this research question were designed so as to increase the likelihood that groups were more representative of a "depressed" or "nondepressed conduct-disordered" inpatient population by controlling for some of the limitations created by the exclusive use of the CDI or the adult-based *DSM-III* psychiatric criteria and thus further refining the two groups of depressed and conduct-disordered subjects. When subjects were grouped according to a primary *DSM-III* diagnosis for depression (no secondary conduct disorder) and high (11 or higher) CDI score or a primary *DSM-III* diagnosis for conduct disorder (no secondary depression) and low (less than 11) CDI score, sadness was the only significant POR variable to discriminate between the two groups. Sadness would appear, then, to be a primary discriminating variable for the presence or absence of depression in children and adolescents when grouped according to psychiatric and psychometric criteria, as measured by *DSM-III* and the CDI. The presence of sadness as
a correlate of depression was also confirmed in other CDI studies (e.g., Politano et al., 1989; Reinherz et al., 1990; Weiss et al., 1991; Weiss et al., 1992). This investigation, however, did not find statistical support for other variables reported to be associated with high CDI scores such as anxiety, withdrawal, and antisocial behaviors reported by Reinherz and associates (1990); poor peer relationships and attention and concentration problems found by Strausse et al. (1984); or social withdrawal and academic problems (Politano et al., 1989).

It may be noteworthy that several other variables, although not significant, loaded fairly high in the discriminant function and may be worth exploring in future research efforts. Poor self-concept \( r = .22 \) was consistent with findings for the second research question for discriminating between depressed children and adolescents and youth who are conduct-disordered. Suicidal thoughts and behavior \( r = .23 \) also loaded in the direction of the DSM-III + CDI depressed group for this discriminant function. Although aggression \( r = -.29 \) was not significant in discriminating between these further refined groups of depressed and conduct-disordered children and adolescents as it had for the prior research question, it loaded next to sadness in discriminating power and just missed the \( r >= .30 \) criteria for significance. Although it is stressed that
these variables were not statistically significant, it is interesting that for this discriminant function aggression had a higher loading power than self-concept which was not the case in the preceding research question. It is suggested that further research on aggression as a discriminating variable is worth exploring to shed some light on the role of aggressive behavior in this population of children and adolescents. In addition to aggression, other POR variables loading in the direction of the conduct disorder group with fairly high discriminating power were two additional externalizing behaviors, disobediance \( r = -0.23 \) and substance abuse \( r = -0.22 \).

An examination of group means of the 40 POR behaviors (see Table 8) indicated that sadness (88%), suicidal behavior (63%), poor self-concept (54%), aggression (35%), school underachievement (28%), antisocial behavior (26%), and poor peer relationships (26%) were the most prevalent behaviors for the \( DSM-III + CDI \) depressed subjects. Sadness, suicidal behavior, and school underachievement occurred more frequently than in \( DSM-III + CDI \) nondepressed conduct-disordered subjects. It would appear that although aggression has some discriminating power between the two groups, aggressive behavior is not an uncommon behavior in depressed youth which is consistent with the literature as previously cited in Chapter 1 of this study. Aggression
(96%), disobedience (66%), antisocial behavior (53%), substance abuse (32%), and poor peer relationships (32%) were the most frequent behaviors for the DSM-III + CDI nondepressed conduct-disordered subjects; all of which occurred more often than in the DSM-III + CDI depressed subjects. Suicide (26%) and poor self-concept (23%) were also relatively frequent for this group of conduct-disordered youth.

Again as for the second research question, it would appear that for this sample of inpatient children and adolescents behaviors commonly associated with DSM-III criteria for depression were not prevalent, i.e., eating problems, crying, sleep problems, irritability, withdrawal and guilt. Those behaviors were more frequent in the DSM-III + CDI depressed group but only ranged in frequency within that group from 2.3% to 11.6%; mean differences between the two groups were minimal for those behaviors. It was interesting that anxiety, commonly associated with depression in children (e.g., Reinherz et al., 1990; Strausse et al., 1984) was lower for this group of depressed subjects (7.0%) than for the group defined by DSM-III criteria only (16.5%). Another commonly associated feature, somatic complaints, was also higher for the DSM-III + CDI depressed group (11.6%) than for the DSM-III only depressed group (6.8%). It may be that somatic complaints are
associated more with severely depressed children and adolescents (and thus not as evident prior to the addition of the high CDI criteria); likewise, anxiety may be more associated with less severe forms of depressive disorders. Additional research in these areas is needed before such interpretations can be reliably made, however.

Fourth Research Question

Although the discriminant function was not statistically significant for children (<13) and adolescents (=>13) with a depressed diagnosis and no secondary conduct disorder, the data revealed some trends in age differences that may be worth mentioning. Pooled within-groups correlations between the discriminating variables and the canonical discriminant functions indicated three POR variables that were within the cutoff range (r=>.30) for the strongest discriminating variables. The strongest discriminating variable was aggression (r=.32) followed by suicidal behavior (r=-.32) and feeling rejected (r=.31). Aggression and feeling rejected were in the direction of the younger DSM-III depressed group while suicidal behavior was in the direction of the older DSM-III depressed group. The higher incidence of aggression by children is similar to findings by Weiss and associates (1991) who reported that in their sample of depressed children and adolescents, children were found to externalize more than adolescents. With the present sample,
this only seems to hold true for aggressive, but not antisocial and disobedient behaviors. This study's findings in regard to suicidal behavior, however, is contrary to results reported by Carlson and Kashani (1988) that suicidal ideation occurs with similar frequency across developmental ages.

An examination of the group means for frequency of POR behaviors indicated some additional trends (see Table 9). The most common POR behaviors for the children's group were sadness (86%), poor self-concept (70%), aggression (55%), poor peer relationships (45%), antisocial behavior (39%), school underachievement (41%), disobedience (36%), suicidal behavior (34%), and feeling rejected (32%). The adolescent group had the highest frequencies for the following POR behaviors: sadness (81%), suicidal behavior (73%), poor self-concept (47%), disobedience (32%), antisocial behavior (36%), school underachievement (34%), and poor peer relationships (27%). Depressed children were more likely than depressed adolescents to have poor self-concept (found by Carlson & Kashani, 1988 but the opposite was reported by Garber, 1984), display aggression, feel rejected, have poor peer relationships, have immature social and self-help skills, and have temper tantrums. Depressed adolescents appeared to be more likely to be suicidal, run away, and abuse substances than the depressed children. Depressed
children and adolescents in this sample had similar frequencies for sadness, anxiety, antisocial behavior, school underachievement, disobedience, and social withdrawal. Crying, eating and sleeping problems, somatic complaints, lethargy, irritability, and guilt—behaviors associated with DSM-III criteria for depression—ranged in frequency from 0% to 15.2% for both groups. Of these behaviors, sleep problems occurred most frequently for the adolescent group (15.3%) compared to 9% for the group of children, while crying occurred most frequently for the group of children (13.6%) compared to 5% for the adolescent group. Similar findings were reported indicating higher levels of increased poor self-concept in children by Carlson and Kashani (1988) and Poznanski (1982); this study's observations were contrary to findings by Garber (1984) who reported high frequencies of poor self-concept in adolescents and by Weiss et al. (1992) who found poor self-concept to be age-invariate. These trends are also similar to results found by Geller et al. (1985) who reported that antisocial behavior was not more common for either children or adolescents, to Weiss et al. (1991) who found frequent school problems in both age groups, and to Ushakov and Girich (1972) and Garber (1984) who indicated that crying was a more common behavior for children than for adolescents.
It would appear that for this sample of depressed children and adolescents, both tend to be sad, have discipline problems, engage in some antisocial behaviors, have low self-concepts, underachieve in school, and have peer relationship problems. Depressed children appear to be more aggressive while adolescents may be at higher risk for suicide. Age differences postulated in *DSM-III* and *DSM-III-R* age-associated features and reported by other researchers (e.g., Carlson & Cantwell, 1980; Geller et al., 1985; Puig-Antich, 1982) were not supported in this study with somatic complaints in this sample occurring infrequently for both groups (less than 10%) and antisocial behaviors being nearly equal for both groups; possible age differences were indicated with children tending to be more aggressive and adolescents acting-out more with running away and substance abuse. Separation anxiety was higher for children than for adolescents but the frequency of occurrence was too low to be considered relevant (11%). This information must be used with caution as there were not significant differences in the data but only trends observed in the data and reported with the intent of inviting further research in the area of developmental differences in behaviors of depressed children and adolescents.

The data obtained in the analysis of this research question should also be interpreted with caution due to the
small sample size ($N=103$), the use of only one set of criteria ($DSM-III$) for defining the groups (i.e., depressed subjects that do not meet adult $DSM-III$ criteria for depression were not represented in this sample), and the use of a large number of POR behavior variables, all of which may have confounded the results. In addition, the use of the two broad categories of age in this study may have limited the findings due to the number of rapid developmental changes known to occur during middle and late childhood. It may be that narrower age groups in future research efforts would be more beneficial by controlling for more of the naturally occurring developmental differences unique to some age groups, e.g., self-concept issues in early adolescence.

Conclusions and Suggestions for Further Research

This study was designed to permit investigation of some general behavioral parameters of childhood depression for the purpose of (1) identifying some behaviors common to clinically depressed inpatient children and adolescents; (2) identifying differences in behaviors between clinically depressed and conduct-disordered youth to eventually aid in the differential diagnosis of those two commonly occurring, and not infrequently comorbid, childhood disorders; and (3) identifying behavioral age differences between depressed children and depressed adolescents to assist in the ongoing
search for answers to the adult criteria-developmental debate on the accurate assessment of childhood depression. The intent of the study was mediated by the researcher's acknowledgment of the current lack of agreement in the field and was, therefore, limited at the onset to looking for broad behavioral variables common to depressed youth rather than for more narrow, specific behavioral descriptors. In that regard, it was acknowledged and offered as a caution to the reader that one of the criterion variables in this study, psychiatric diagnosis using DSM-III criteria, is adult-based criteria, and the second criterion variable, the CDI, represents a downward extension of adult criteria and therefore, the sample may not be representative of the total population of depressed children and adolescents.

The results appear to lend some support to the supposition that there are some behavioral correlates of depression in children and adolescents that may discriminate between psychiatrically diagnosed depressed and conduct-disordered youth. Sadness appears to be the most powerful discriminating variable for predicting depression as separate from conduct disorder when depression is defined psychiatrically by DSM-III criteria alone (DSM-III groups) and in conjunction with CDI cutoff scores of 11 or higher (DSM-III + CDI groups). Aggression was significant in predicting conduct disorder for the DSM-III groups. Poor
self-concept and school underachievement were also indicated as behavioral variables having discriminating power when depression was defined solely by psychiatric diagnosis using DSM-III but failed to meet the criteria for significance when the groups were further refined with the addition of CDI cutoff scores. One explanation may be the significant reduction in sample size that occurred with the addition of CDI scores as a second criterion variable (i.e., $N=90$ compared to the previous DSM-III sample where $N=229$) possibly confounding the results. Another explanation may be that the refinement of the criteria for depression in the DSM-III + CDI sample may have lead to more accurate results by controlling for other unknown extraneous variables effecting the results for the DSM-III sample groups. It would be of value to explore sadness and aggression further and the function each plays in depressive and conduct disorders. It has been suggested that each disorder may be a subset of the other (e.g., Christ, 1992); it may be that the presence of sadness in conduct-disordered youth or aggression in depressed youth may be an as yet unrecognized manifestation of such a subset.

When used with a diverse inpatient population such as was the case in the first research question of this investigation, it would appear that the CDI when used alone is not a very useful tool for determining the absence or
presence of depression due to the number of previous limitations previously cited in this Chapter. Results for the discriminant function for this research question were not significant; nor were there apparent differences in frequencies of behaviors between groups. Based on the results of this study, future investigative efforts of the behavioral dimensions of childhood depression would be advised not to use the CDI as the sole criterion measure of depression.

Although not significant statistically, examination of the frequencies of POR behaviors within and between DSM-III groups and DSM-III + CDI groups indicate that the most frequently occurring POR behaviors for depressed children and adolescents were: sadness, suicidal behaviors, poor self-concept, aggression, school underachievement, poor peer relationships, and antisocial behavior. Common POR behaviors found in conduct-disordered groups were: aggression, disobedience, antisocial behavior, substance abuse, poor peer relationships, suicide, and poor self-concept. Further investigation into these behaviors is warranted.

A unique advantage to the design of this study was in the use of the POR variables to obtain data on a wide variety of behaviors not influenced by any behavioral checklist making this a purely behavioral rather than
psychometric investigation. There are several notable limitations, however, inherent in that design including the lack of control over the sources of information on behaviors for each subject, the lack of consistent uniform definitions for the various behaviors designated on the general problem list collected by the original researchers, the lack of control by two researchers on the coding procedure for the general problem list by the original researchers, and the resulting subjective judgment calls made by this researcher for interpreting various coded behaviors from the general problem list to be included in the POR behaviors used in this study. With these limitations in mind, further investigative efforts into the meaning of frequently appearing behaviors for depressed and conduct-disordered groups with more objective behavioral measures might be a useful endeavor in further defining the parameters between depressive and conduct disorders with the eventual goal for providing more appropriate treatment to emotionally disturbed youth.

Age-related differences in behaviors manifested by depressed children and adolescents in this study were not significant. There were, however, some trends in the data that lend tentative support for some age-related differences that would be worth further investigation particularly in the areas of aggression, suicidal behavior, poor self-
concept, school underachievement, feeling rejected, crying, and sleep problems. It is interesting to note that aggression continues to show up as related to depression in children since initially suggested as a depressive equivalent by the masked depression proponents in the 1960s. Several adult-like symptoms described by others (see e.g., Carlson & Kashani, 1988; Garber, 1984, Poznanski, 1982) as frequent in child and adolescent populations such as massive guilt, impaired concentration, irritability, withdrawal, somatization, lethargy and psychomotor retardation were not borne out as frequently occurring behaviors in either group of depressed children and adolescents in this study. This finding lends some support to the supposition that adult criteria may need to be refined to account for symptoms more specific to the various stages of childhood as distinct from those appropriate for adulthood; however such support can only be tentative given the small sample size. Additional research on the behavioral parameters of depression with larger sample sizes of inpatient children and adolescents, utilizing the more up-to-date DSM-III-R as well as additional criterion measures for determining the presence or absence of depression to further refine the groups, and controlling for other extraneous variables such as type of diagnosis, severity of depression, sex, age, and socioeconomic differences would provide much needed
information as to making refinements in the currently used adult-criteria as applied to youth.

The focus of recent research on the assessment of depressive symptoms in children and adolescents has been on developing and validating psychometric measures of childhood depressive symptoms rather than on the validation of particular symptoms of adult-based criteria such as the DSM-III (Quay et. al., 1987). This study, when groups were defined by DSM-III diagnosis only or by DSM-III diagnosis and scores on the CDI, identified a number of behaviors, i.e., sadness, aggression, poor self-concept, school underachievement, suicidal behaviors, poor peer relationship, and disobediance, as being present in groups of depressed children and adolescents and lent support to results of previous psychometric studies (e.g., Carlson & Kashani, 1988; Digdon & Gotlib, 1986; Geller et al., 1984; Reinherz et al., 1990; Strausse et al., 1984; Weiss & Weisz, 1988; Weiss et al., 1991; 1992). Support was also found in this study for the existence of overlapping behaviors (e.g., aggression, disobediance, antisocial behaviors, poor peer relationships, suicidal behavior, and poor self-concept) between depressed and conduct-disordered subjects as reported by other psychometric studies (e.g., McDermott, 1980; Puig-Antich, 1982; Ryan & Puig-Antich, 1986).
Further behavioral studies, such as this investigation, would be beneficial for the following reasons: (1) psychiatric diagnosis alone may not provide an accurate assessment as some children are likely to be misdiagnosed or missed altogether using adult criteria and, therefore, appears inadequate; (2) the use of only psychometric measures to define groups may not adequately differentiate between groups as was found in this study and discussed earlier in this chapter; whereas, (3) a behavioral approach to examining childhood depression could confirm symptoms previously noted from psychometric studies, thus lending additional weight to findings in those areas. Behavioral observations of depressed child and adolescent psychiatric patients should specify operational definitions of the behaviors being observed (as reported from previous psychometric studies) to permit comparisons between behavioral studies and with previous psychometric investigations. Likewise, behavioral observations of symptoms currently applied to children and adolescents from adult-based criteria such as DSM-III-R would be useful in further determining the validity of various adult-based depressive symptoms. Findings would ultimately be useful in formulating developmental refinements in assessment criteria. It would appear that behavioral studies would be most beneficial if designed using multiple criteria to
define depression in child and adolescent populations as was suggested by Finch and Saylor (1986).

Several cautionary notes need to be made regarding the generalizability of this data. This study utilized a clinical inpatient sample, and therefore, results may not generalize to clinical outpatient populations nor to nonclinical populations. This sample was comprised of primarily male, Caucasian subjects and results may not generalize to female populations nor to populations of other racial compositions. In addition, subjects in this investigation were psychiatrically diagnosed with DSM-III criteria. Since the DSM-III-R replaced DSM-III in 1987, generalizability is restricted with current populations diagnosed using DSM-III-R criteria. Although this sample had some geographic diversity with data collected from four different psychiatric hospitals in three different states, it should be remembered that three of the hospitals serviced primarily low to lower-middle socioeconomic populations; thus it is likely that this data is more representative of that socioeconomic population. The reader is reminded to note the above variables before applying results from this investigation to another population.

Finally, since depression in adults has a number of subclassifications, e.g., unipolar, bipolar, primary, secondary, melancholic, etc., one must consider the
possibility of subtypes of depression in children and adolescents (Cantwell & Baker, 1991). This study had an initial pool of subjects with a variety of psychiatric disorders represented. The largest DSM-III diagnostic groups represented were conduct disorders and affective disorders (refer to Table 1). Groups defined for the purposes of this study by DSM-III criteria for depression and conduct disorder were primarily represented by dysthymia within the depressed groups and by the subtype, undersocialized, aggressive, within the conduct disorder groups (refer to Table 2). This over-representation within groups of dysthymia and undersocialized, aggressive conduct disorder may have been another confounding variable influencing results; caution is also recommended, therefore, in generalizing this data to populations other than dysthymic and undersocialized, aggressive conduct-disordered youth. The high prevalence of the aggressive subtype of conduct disorder would also be a likely explanation for the high discriminating power of aggression in analysis of the second research question. Given the power of aggression suggested by the results of this study in discriminating between depressed and conduct-disordered children and adolescents and given the continuing association of aggression with depression in childhood, it would appear that further research investigating the role of aggression
with different subtypes of conduct disorder and with different depressive disorders is indicated. The effect of age on expression of aggression within subtypes of disorders would also be beneficial in further understanding tentative developmental differences. Findings would be expected to be helpful in further refining the diagnostic process from both a developmental perspective and in increasing differentiation between depressive and conduct disorders eventually leading to improved treatment efficacy for our youth.
### APPENDIX A

**GENERAL PROBLEM LIST FROM ARCHIVAL DATA BASE**

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<td>013</td>
<td>emotional constriction</td>
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<tr>
<td>014</td>
<td>euphoric, elevated mood</td>
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<tr>
<td>015</td>
<td>flat affect, sadness</td>
</tr>
<tr>
<td>016</td>
<td>grandiosity</td>
</tr>
<tr>
<td>017</td>
<td>anxiety</td>
</tr>
<tr>
<td>018</td>
<td>inappropriate affect</td>
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<td>019</td>
<td>blocked emotionally</td>
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<tr>
<td>020</td>
<td>feelings of unreality</td>
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<tr>
<td></td>
<td><strong>Aggressive/Destructive</strong></td>
</tr>
<tr>
<td>021</td>
<td>bullying, aggressive</td>
</tr>
<tr>
<td>022</td>
<td>homicidal behavior</td>
</tr>
<tr>
<td>023</td>
<td>homicidal threats, thoughts</td>
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<tr>
<td>024</td>
<td>self-abusive</td>
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<tr>
<td>025</td>
<td>cruelty to animals</td>
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<tr>
<td>026</td>
<td>blunted anger</td>
</tr>
<tr>
<td>027</td>
<td>playing with/setting fires</td>
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<tr>
<td>028</td>
<td>fighting</td>
</tr>
<tr>
<td>029</td>
<td>physical assault/violent</td>
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<tr>
<td>030</td>
<td>destroying property</td>
</tr>
<tr>
<td></td>
<td><strong>Cognitive/Intellectual</strong></td>
</tr>
<tr>
<td>031</td>
<td>subaverage IQ</td>
</tr>
<tr>
<td>032</td>
<td>inattention</td>
</tr>
<tr>
<td>033</td>
<td>distractible (032/033=ADD)</td>
</tr>
<tr>
<td>034</td>
<td>impulsive</td>
</tr>
<tr>
<td>035</td>
<td>does not follow directions</td>
</tr>
<tr>
<td>036</td>
<td>low frustration tolerance</td>
</tr>
<tr>
<td>037</td>
<td>impaired short-term memory</td>
</tr>
<tr>
<td>038</td>
<td>impaired long-term memory</td>
</tr>
</tbody>
</table>
loose associations
unusual thought content
obsessive thoughts

**Eating/Body Image**
obesity
disturbed body image
excessive/sudden weight gain
excessive/sudden weight loss
gorging, vomiting
hoarding foods
eating non-foods

**Educational**
truancy
overachievement
underachievement
school refusal/phobia
impaired math, reading skills (LD)

**Muscular/Neurological/Physical**
seizures
excessive motor activity
somatic complaints
tics, motor--nonvoluntary
blackouts
motor retardation
tics, vocal
repetitive movements--voluntary
rocking
sleepwalking
motor perseveration
proprioceptive/vestibular

**Self-Perception**
low self-esteem
lack of clear sense of self
inferiority feelings
lack of confidence

**Sensory/Communication**
impaired vision
impaired hearing
mutism
stuttering, stammering
no communicative language
impaired expressive skills
impaired comprehension
pressured speech
developmental language delay
echolalia
language perseveration
inappropriate sexual behavior
questionable sexual orientation
homosexual
Social/Interpersonal
084 impaired adaptive behavior
085 temper tantrums
086 disregard rights of others
087 disregard social norms
088 poor peer relationships
089 lack of empathy, affection
090 lack of guilt, remorse
091 manipulative
092 conflict with authority
093 running away
094 lying
095 cheating
096 stealing
097 antisocial behavior
098 separation anxiety
099 demanding, attention seeking
100 conforming, passive dependent
101 overly sensitive to criticism
102 shy, socially inhibited
103 overly suspicious, paranoid
104 preoccupied with inanimate objects
105 schizoid
106 overreactive to change

Specific Behaviors
107 enuresis
108 encopresis
109 substance abuse
110 delusions
111 hallucinations

Additions As Needed
112 poor appetite
113 foul, vulgar language
114 psychological regression
115 organicity
116 sleep disturbance--general
117 overactive fantasy life
118 sexual promiscuity
119 oppositional
120 kills animals
121 restless, fidgety
122 discipline problem
123 immature social skills
124 immature self-help skills
125 inappropriate reality testing
126 anger escalates rapidly, explosive
127 multiple personalities
128 ego fragmentation
129 disruptive behavior
130 teasing peers
131 poor eye contact
withdrawn, isolated, loner
immatue emotionally
sexual anxieties
exploitative
satanic worship, cult
hair pulling
sibling conflict, rivalry, jealousy
nightmares, terrors
sexually provocative
substance hallucinosis
drug dealing
makes strange noises
low trust level
hypomanic
grief over abortion
irritable
sexual assault of another
hostile attitude, angry, enraged
eating disturbance--general
overly guilty
confused thinking
irresponsible
Family Problems
unstable family
unclear family roles
hostile-dependent mother-child relations
unresolved feelings--father's death
disengaged family
enmeshed family
unresolved feelings--divorce
overindulged child
unresolved feelings--mother
feels rejected
unresolved feelings--mother's death
hostile relationship-dad
Physiological/Additional
asthma
environmental allergies
migraine headaches
abnormal EEG
heart defect
diabetic
noncompliance--medical routine
colostomy
Reyes Syndrome
nonreactive to pain
raped
heart murmur
pregnant
cerebral palsey
developmental delay
## APPENDIX B
### POR BEHAVIORS

<table>
<thead>
<tr>
<th>POR CODE</th>
<th>Description and General Problem List Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUICIDE</td>
<td>suicidal behavior (005); suicidal threats, thoughts (006)</td>
</tr>
<tr>
<td>DSOBEY</td>
<td>defiant (007); does not follow directions (035); conflict with authority (092); oppositional (119); discipline problem (122)</td>
</tr>
<tr>
<td>THOUGHT</td>
<td>fears, worries (008); phobias (009); unusual thought content (040); obsessive thoughts (041)</td>
</tr>
<tr>
<td>ANTSOC</td>
<td>lying (094); cheating (095); stealing (096); antisocial behavior (097)</td>
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<tr>
<td>WTHDRAW</td>
<td>shy, socially inhibited (102); apathetic, emotional withdrawal (010); withdrawn, isolated, loner (132)</td>
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<tr>
<td>AGRESIVE</td>
<td>bullying, aggressive (021); fighting (028); destroying property (030)</td>
</tr>
<tr>
<td>ADD</td>
<td>inattention (032); distractible (033)</td>
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<tr>
<td>SLFCNCPCT</td>
<td>low self-esteem (066); lack of clear sense of self (067)</td>
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<tr>
<td>EAT</td>
<td>excessive/sudden weight gain (044); excessive sudden weight loss (045); poor appetite (112); eating disturbance—general (150)</td>
</tr>
<tr>
<td>SLEEP</td>
<td>sleep disturbance—general (116)</td>
</tr>
<tr>
<td>SAD</td>
<td>depressed appearance (011); flat affect, sadness (015)</td>
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<tr>
<td>IMATUR</td>
<td>immature social skills (123); immature self-help skills (124)</td>
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</tbody>
</table>
INFERIOR  inferiority feelings (068); lack of confidence (069); overly sensitive to criticism (101)
STUBRN  stubborn (001)
NEGATVSM  negativism (002)
MOODY  emotional lability, moody (003)
CRY  tearful, crying (012)
ANXIETY  anxiety (017)
SLFABUSE  self-abusive (024)
TANTRUM  temper tantrums (085)
NOFRIEND  poor peer relationships (088)
RUN  running away (093)
SEPRATE  school refusal/phobia (052); separation anxiety (098)
ENURES  enuresis (107)
ENCOPRS  encopresis (108)
DRUGS  substance abuse (109)
DELUDED  delusions (110)
RESTLESS  restless behavior (129)
TRUANT  truancy (049)
SCHFAIL  school underachievement (051)
SOMATIC  somatic complaints (056)
DISRUPT  disruptive behavior (129)
NITEMARS  nightmares, terrors (139)
LETHARGY  hypomanic (145)
IRRITABLE  irritable (147)
PROMSEX  sexual promiscuity (118)
<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
<th>Page</th>
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</thead>
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<tr>
<td>ANGRY</td>
<td>hostile attitude, angry, enraged</td>
<td>149</td>
</tr>
<tr>
<td>GUILT</td>
<td>overly guilty</td>
<td>151</td>
</tr>
<tr>
<td>CONFUSD</td>
<td>confused thinking</td>
<td>152</td>
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<tr>
<td>NOLOVE</td>
<td>feels rejected</td>
<td>609</td>
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</tbody>
</table>
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VITA

Kathryn Haynes Rhody

Birthdate: July 19, 1948
Birthplace: Newport News, Virginia

Education: 1987-1993 The College of William and Mary, Williamsburg, Virginia
            Doctor of Education

            1984-1987 The College of William and Mary, Williamsburg, Virginia
            Education Specialist

            1976-1980 Old Dominion University, Norfolk, Virginia
            Masters of Science in Education

            1967-1970 Christopher Newport College, Newport News, Virginia
            Bachelor of Arts

Experience: 1988-1993 Individual and Family Therapist
            Therapy Associates of Denbigh, Newport News, Virginia

            1984-1988 Individual and Family Therapist
            Wendell J. Pile & Associates, Newport News, Virginia

            1986 Family Counselor
            PACES Family Counseling Center, Williamsburg, Virginia

            1980-1989 Crisis Worker, Group Facilitator
            Virginia Peninsula Council on Domestic Violence, Hampton, Virginia